

NOTES - THIS DRAWING IS UNCONTROLLABLE. ANY CHANGES MADE TO THIS DRAWING ARE THE RESPONSIBILITY OF THE DRAWER. THIS DRAWING IS FOR INFORMATIONAL PURPOSES ONLY AND IS NOT A CONTRACTUAL DRAWING. IT IS THE RESPONSIBILITY OF THE DRAWER TO MAINTAIN AN UP-TO-DATE CONTRACTUAL DRAWING. THIS DRAWING IS FOR INFORMATIONAL PURPOSES ONLY AND IS NOT A CONTRACTUAL DRAWING. IT IS THE RESPONSIBILITY OF THE DRAWER TO MAINTAIN AN UP-TO-DATE CONTRACTUAL DRAWING.

REVISIONS			
REV	DESCRIPTION	DATE	APPROVAL
①	INITIAL RELEASE PER TORR 07058	7/16/74	WAC
A	REVISED PER TORR C7505	9/26/74	WAC
B	REVISED PER TORR 03852 DR R B CHK A/B	10/12/74	WAC

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80



NOTES

- INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2. CARD COLUMNS USAGE

- | | |
|-------|---------------------------------------|
| 3-9 | DRAWING NUMBER |
| 12-15 | CARD NUMBER |
| 16 | PATTERN CODE |
| 17 | TABLE ROTATIONAL POSITION |
| 18 | A-TOOL Z-LEVEL |
| 19 | B-TOOL Z-LEVEL |
| 20-21 | A-TOOL X-POSITION |
| 22-23 | LOWEST Y IN BOTH UNITS |
| 24-25 | B-TOOL X-POSITION |
| 26-27 | LOWEST Y IN OTHER UNIT |
| 28-29 | HIGHEST Y IN FIRST UNIT |
| 30-31 | HIGHEST Y IN OTHER UNIT |
| 32-35 | NEXT CARD NUMBER |
| 36-37 | A-TOOL X POSITION IN TRP-I |
| 38-39 | A-TOOL Y POSITION IN TRP-I |
| 40-41 | A-DRESSING FINGER X POSITION IN TRP-I |
| 42-43 | A-DRESSING FINGER Y POSITION IN TRP-I |
| 44-45 | B-DRESSING FINGER X POSITION IN TRP-I |
| 46-47 | B-DRESSING FINGER Y POSITION IN TRP-I |
| 48-49 | B-TOOL X POSITION IN TRP-I |
| 50-51 | B-TOOL Y POSITION IN TRP-I |
| 70-73 | SIGNAL SEQUENCE NUMBER(CKT) |
| 74-75 | WIRE COUNTER |

REF DRAWING NUMBER 1003189
1006170

QTY REQ	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION		FIG NO
LIST OF MATERIALS				
		MIT INSTRUMENTATION LAB INSTRUMENTATION LAB MANUFACTURER'S NAME 202-50 INSTRUMENT		MANNED SPACECRAFT CENTER HOUSTON, TEXAS
		DRAWN BY DATE CHECKED BY DO NOT SCALE THIS DRAWING		WIREWRAP CARD DECK COMPUTER END CONNECTOR
		APPROVED APPROVAL MATERIAL		CODE IDENT NO SITE D NASA DRAWING NO 1006169
		HEAT TREATMENT	NASA APPROVAL	SCALES WT SHEET 1 OF 1
		NEXT ASSY USED ON	FINAL FINISH	
		APPLICATION	MIT APPROVAL	

REVISIONS		Date	Approval
BY	DESCRIPTION		
A	INITIAL RELEASE PER TDAR	05629	WHD
B	REVISED PER TDAR	07508	WHD
C	REVISED PER TDAR OR R Baudoin CHK	06855 R. B.	JUN 69 WHD

NOTES

- | | |
|--|--------------------------------------|
| 1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS
PRESCRIBED BY MIL-D-70327 | |
| 2. CARD COLUMNS | USAGE |
| 2 - 5 | CARD NUMBER |
| 6 - 7 | INSERTION DIGITS FOR ADDING CARDS |
| B | VERTICAL FORMAT CONTROL FOR PRINTING |
| 18 - 24 | SIGNAL NAME |
| 33 - 38 | END CONNECTOR PIN NUMBER |
| 42 - 70 | NOTES AS REQUIRED |
| 73 - 79 | NASA DRAWING NUMBER |
| 80 | REVISION LETTER |

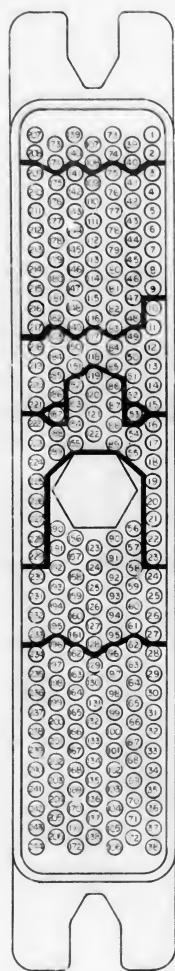
REF DRAWING NUMBER 1003189

		QTY REQD	PART OR IDENTIFYING NO.	INCLINATION OR DESCRIPTION	FILE NO
LIST OF MATERIALS					
	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON FRACTIONS DECIMALS ANGLES	M 17 INSTRUMENTATION LAB CAMBRIDGE MASS. DRAWN BY <i>L. J. Rutherford</i> CHECKED BY <i>W. C. Hall</i> APPROVAL <i>W. C. Hall</i> APPROVAL <i>John C. Hall</i> 7 Jan 64		'MANAGED SPACECRAFT CENTER HOUSTON, TEXAS	
DO NOT SCALE THIS DRAWING MATERIAL		NASA APPROVAL <i>John C. Hall</i> 7 Jan 64		COMPUTER END CONNECTOR WIRING	
NEXT ASSY USED ON	FINAL FINISH	MIT APPROVAL <i>O. H. Kephart</i> 1/21/67		CODE IDENT NO. <i>D</i>	NASA DRAWING NO. 1006170
APPLICATION		SCALE	WT	SHEET	OF

NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR THE MANUFACTURE OF EQUIPMENT OPERATING IN THE UNITED STATES AND ITS POSSESSIONS, THE CONTRACTOR SHALL NOT USE THE SAME UNLESS HE HAS BEEN ADVISED IN WRITING BY THE CONTRACTING OFFICER AS TO WHETHER OR NOT THE SAME MAY BE USED. THE SAME SPECIFICATIONS OR OTHER DATA IS NOT TO BE USED IN THE MANUFACTURE OF EQUIPMENT OPERATING OUTSIDE THE UNITED STATES AND ITS POSSESSIONS, EXCEPT AS PROVIDED IN THE CONTRACT. THE LAST RIGHT OF REFERENCE TO THE DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS RESERVED.

REVISIONS 02643

SYM.	DESCRIPTION	DATE	APPROVAL
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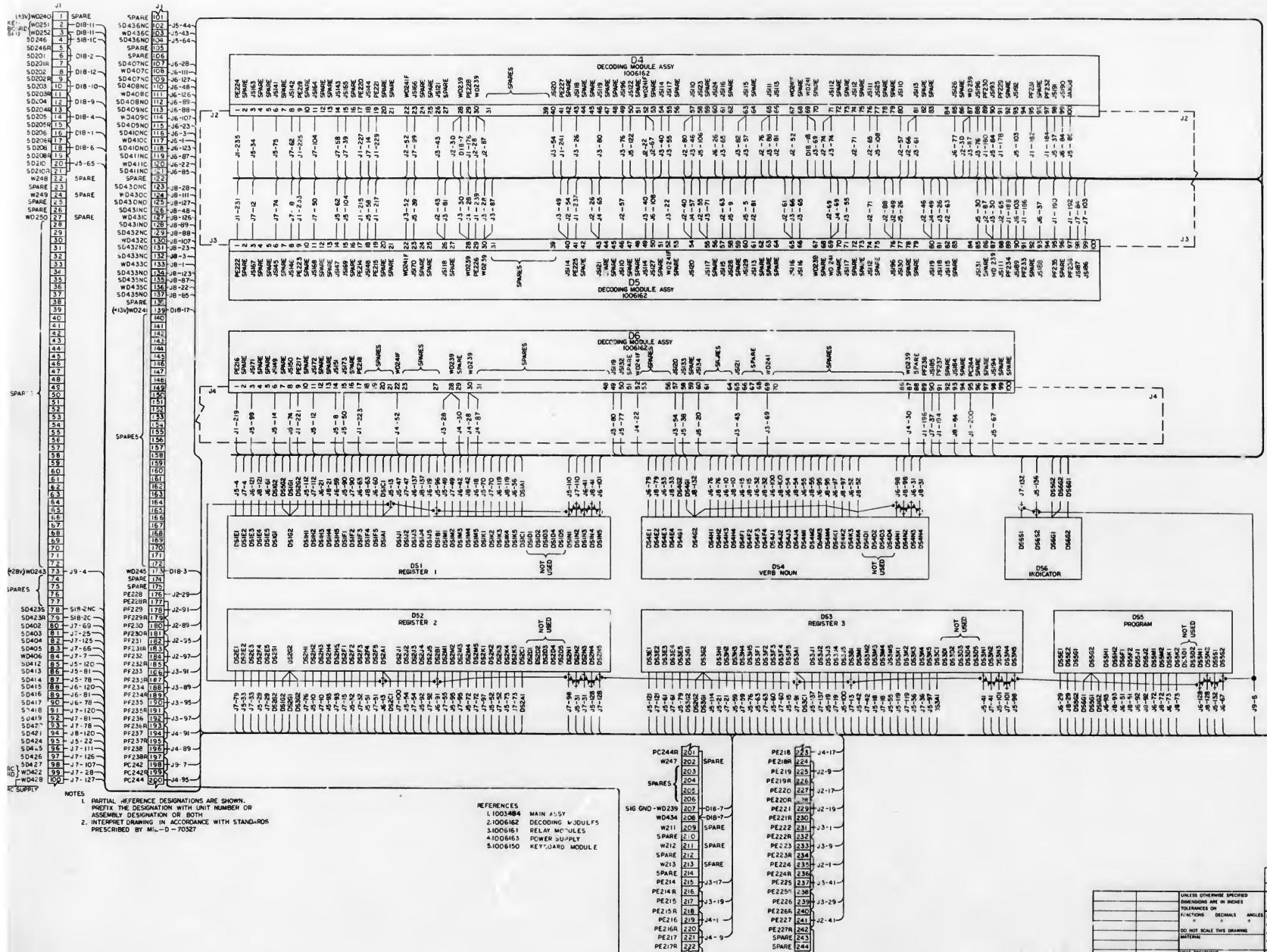
MALE RECEPTACLE
CONTACT SIDE
NORMAL POLARIZATION

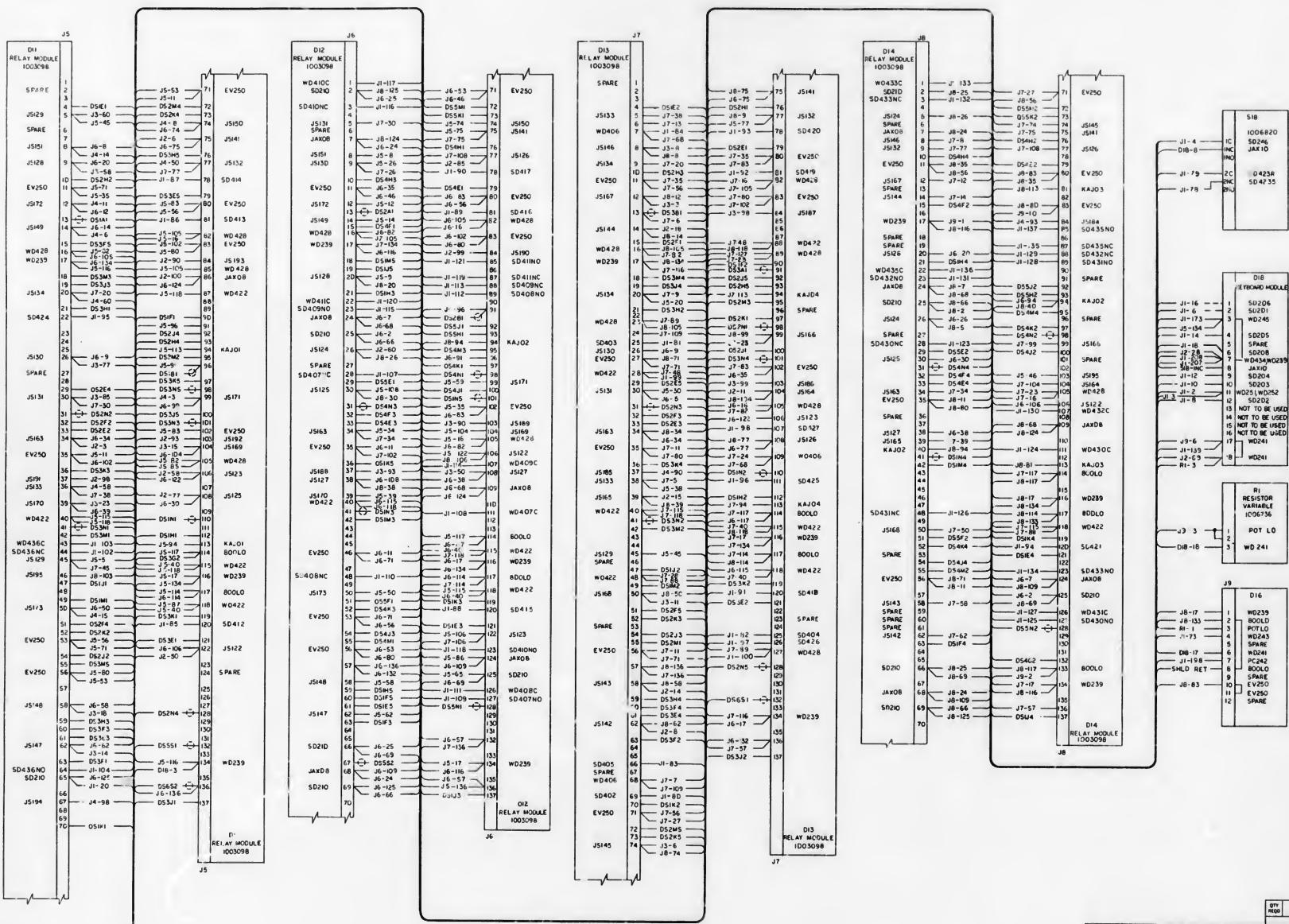
NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED
BY MIL-D-7037

1 NOT AVAILABLE FOR USE		73 NOT AVAILABLE FOR USE		139 NOT AVAILABLE FOR USE		207 NOT AVAILABLE FOR USE	
2 NOT AVAILABLE FOR USE	39 239	74 243	75 212	107 245	140 213	173 251	208
3 211	41 219 SIG	76 218 SIG	108 217 SIG	141 216 SIG	174 240	175 215 SIG	209 247
4 220 SIG	42 219 RET	77 218 RET	109 217 RET	142 216 RET	176 215 RET	210 214 SIG	211 214 RET
5 220 RET	43 226 SIG	78 225 SIG	110 224 SIG	143 224 RET	177 222 SIG	212 221 SIG	213 221 RET
6 227 SIG	44 226 RET	79 225 RET	111 224 RET	144 223 SIG	178 222 RET	214 228 SIG	215 228 RET
7 227 RET	45 233 SIG	80 232 SIG	112 231 SIG	145 223 RET	179 229 SIG	216 235 SIG	217 235 RET
8 234 SIG	46 233 RET	81 232 RET	113 231 SIG	146 230 SIG	180 229 RET	218 201 SIG	219 201 RET
9 234 RET	47 244 SIG	82 242 SIG	114 231 RET	147 230 RET	181 236 SIG	220 208 SIG	221 208 RET
10 248	48 244 RET	83 242 RET	115 238 SIG	148 237 SIG	182 236 RET	222	222
11 249	49 206 SIG	84 205 SIG	116 238 RET	149 237 RET	183 202 SIG	223	223
12	50 206 RET	85 205 RET	117 204 SIG	150 203 SIG	184 202 RET	224 1 SIG	225 NOT AVAILABLE FOR USE
13	51 246 SIG	86 205 RET	118 204 RET	151 203 RET	185 210 SIG	226 1 RET	CABLE GROUP IV NOT SHIELDED
14	52 246 RET	87	119	152	186 210 RET	227	CABLE GROUP V SHIELDED
15	53	88	120	153	187 250	228	CABLE GROUP VI NOT SHIELDED
16 54 SIG	54	89	121	154	188	229	CABLE GROUP VII SHIELDED
17			122	155	189	230	CABLE GROUP VIII SHIELDED
18 54 RET						231	CABLE GROUP IX SHIELDED
19						232	CABLE GROUP X SHIELDED
20						233	CABLE GROUP XI SHIELDED
21						234	CABLE GROUP XII SHIELDED
CABLE GROUP VI		56	90 17 SIG	123 24 SIG	156 14 SIG	190 14 SIG	228
CABLE GROUP VII		57	91 17 RET	124 24 RET	157	191 14 RET	229
CABLE GROUP VIII		58	92 26 SIG	125 25 SIG	158	192 15 SIG	230
CABLE GROUP IX		59	93	126 25 RET	159	193 15 RET	231
CABLE GROUP X		60	94 11 SIG	127	160	194 16 SIG	232
CABLE GROUP XI		61	95 11 RET	128	161	195 16 RET	233
CABLE GROUP XII		62 GVOCL SP CRAFT (26 RET)	129	162	196	197 MIN IMPULSE - PITCH	234
CABLE GROUP XIII		63 IMU TEMP LIGHT	130	163 MIN IMPULSE + PITCH	198	MIN IMPULSE PITCH	235
CABLE GROUP XIV		64	131	164 MIN IMPULSE - ROLL	199	COS AUG IX HI (\$3)	236
CABLE GROUP XV		65	132	165 MIN IMPULSE ROLL	200	COS AUG IX LO (\$1)	237
CABLE GROUP XVI		66 ROLL ERROR OFFSET LO	133	166 SIN AUG IX LD (\$2)	201	COS AMG IX HI (\$3)	238
CABLE GROUP XVII		67 ROLL ERROR BODY HI	101	167 SIN AUG IX HI (\$4)	202	COS AMG IX LO (\$1)	239
CABLE GROUP XVIII		68 YAW ERROR OFFSET HI	102	168 SIN AMG IX LO (\$2)	203	COS AIG IX LU (\$1)	240
CABLE GROUP XIX		69 YAW ERROR BODY LO	103	169 SIN AMG IX HI (\$4)	204	COS AIG IX HI (\$3)	241
CABLE GROUP XX		70 PITCH ERROR SHLD	104	170 SIN AIG IX LD (\$2)	205	NOT AVAILABLE FOR USE	242 IMU 28V 800CPs LO
CABLE GROUP XXI		71 PITCH ERROR LO	105	171 SIN AIG IX HI (\$4)	206	NOT AVAILABLE FOR USE	243 IMU 28V 800CPs HI
CABLE GROUP XXII		72 NOT AVAILABLE FOR USE	106	172 NOT AVAILABLE FOR USE	207	NOT AVAILABLE FOR USE	244 NOT AVAILABLE FOR USE

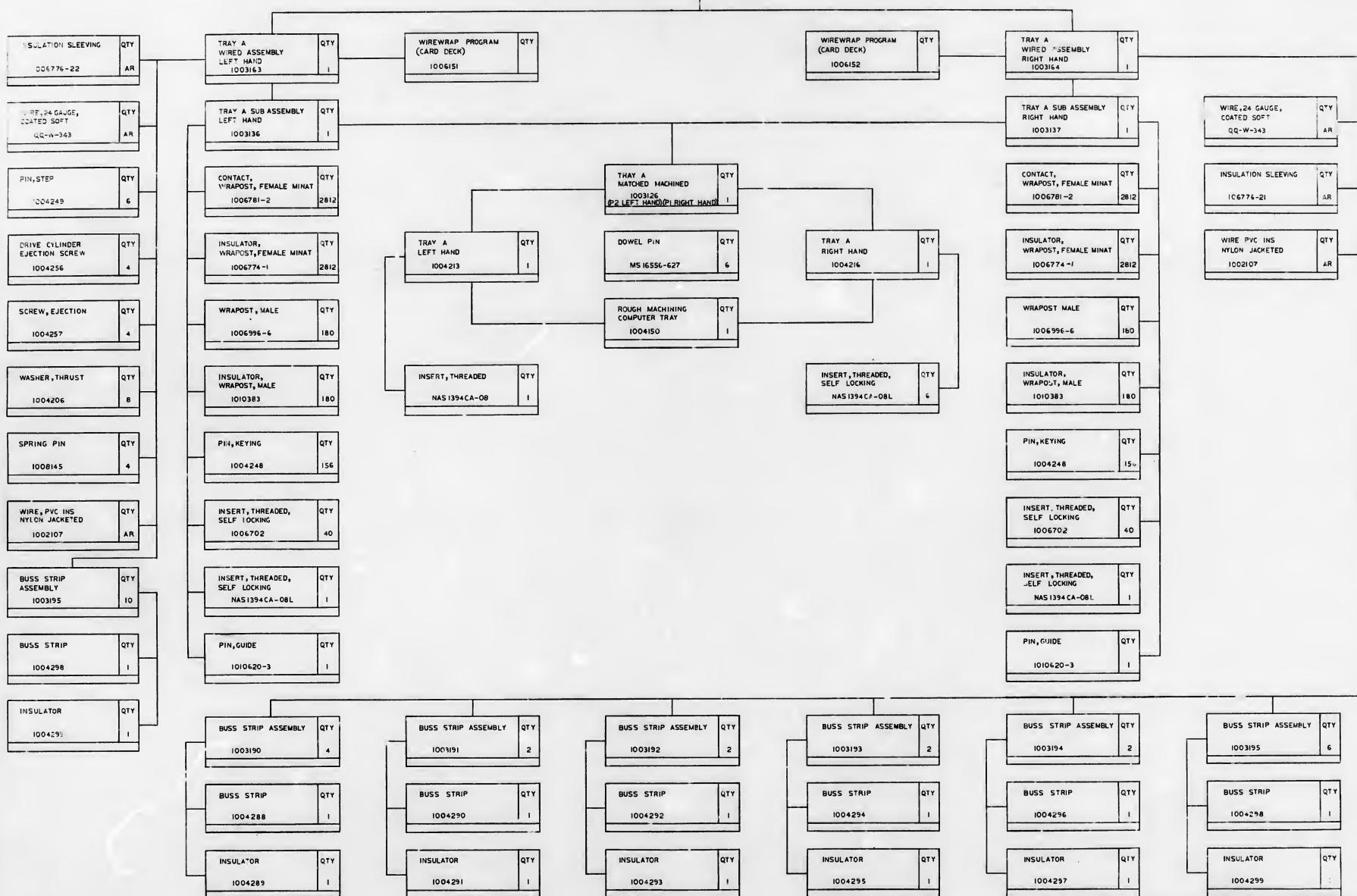
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INSTRUMENTATION LAB CHAMBER		MANAGED SPACECRAFT CENTER HOUSTON, TEXAS	
DRAWN BY <u>J. B. BURKE</u> DATE 9 MAR 68 CHECKED BY <u>W. J. HARRIS</u> APPROVAL <u>2000-10-10</u> APPROVAL <u>2000-10-10</u> APPROVAL <u>2000-10-10</u>		HEAT TREATMENT	
NEXT ASSY USED ON APPLICATION		NASA APPROVAL <u>2000-10-10</u> MIT APPROVAL <u>2000-10-10</u> MIT APPROVAL <u>2000-10-10</u> APPROVAL <u>2000-10-10</u>	
APPLICATION		CODE IDENT NO. <u>D</u> SIZE <u>WT</u> NASA DRAWING NO. <u>1006182</u> SCALE NONE WT SHEET 1 OF 1	





QTY REQD	PART OR IDENTIFYING ID	ROUTINE/CLIQUE Q/R DESCRIPTION		FILE NO
		LIST OF MATERIALS		
INSTRUMENTATION LAB		MANAGED SPACECRAFT CENTER HOUSTON, TEXAS		
M/T		INTERCONNECTING DIA.		M
DRAWN BY <i>[Signature]</i> DATE <i>10-10-82</i>		APPROVED BY <i>[Signature]</i> DATE <i>10-10-82</i>		
CHECKED BY <i>[Signature]</i> DATE <i>10-10-82</i>		APPROVED BY <i>[Signature]</i> DATE <i>10-10-82</i>		
APPROVED BY <i>[Signature]</i> DATE <i>10-10-82</i>		APPROVED BY <i>[Signature]</i> DATE <i>10-10-82</i>		
M/S APPROVED <i>[Signature]</i> DATE <i>10-10-82</i>		CODE IDENT NO <i>J</i>		MATERIAL DRAWING NO 1006196
M/T APPROVED <i>[Signature]</i> DATE <i>10-10-82</i>				
M/T APPROVAL				

TRAY A ASSEMBLY
SEE FAMILY TREE

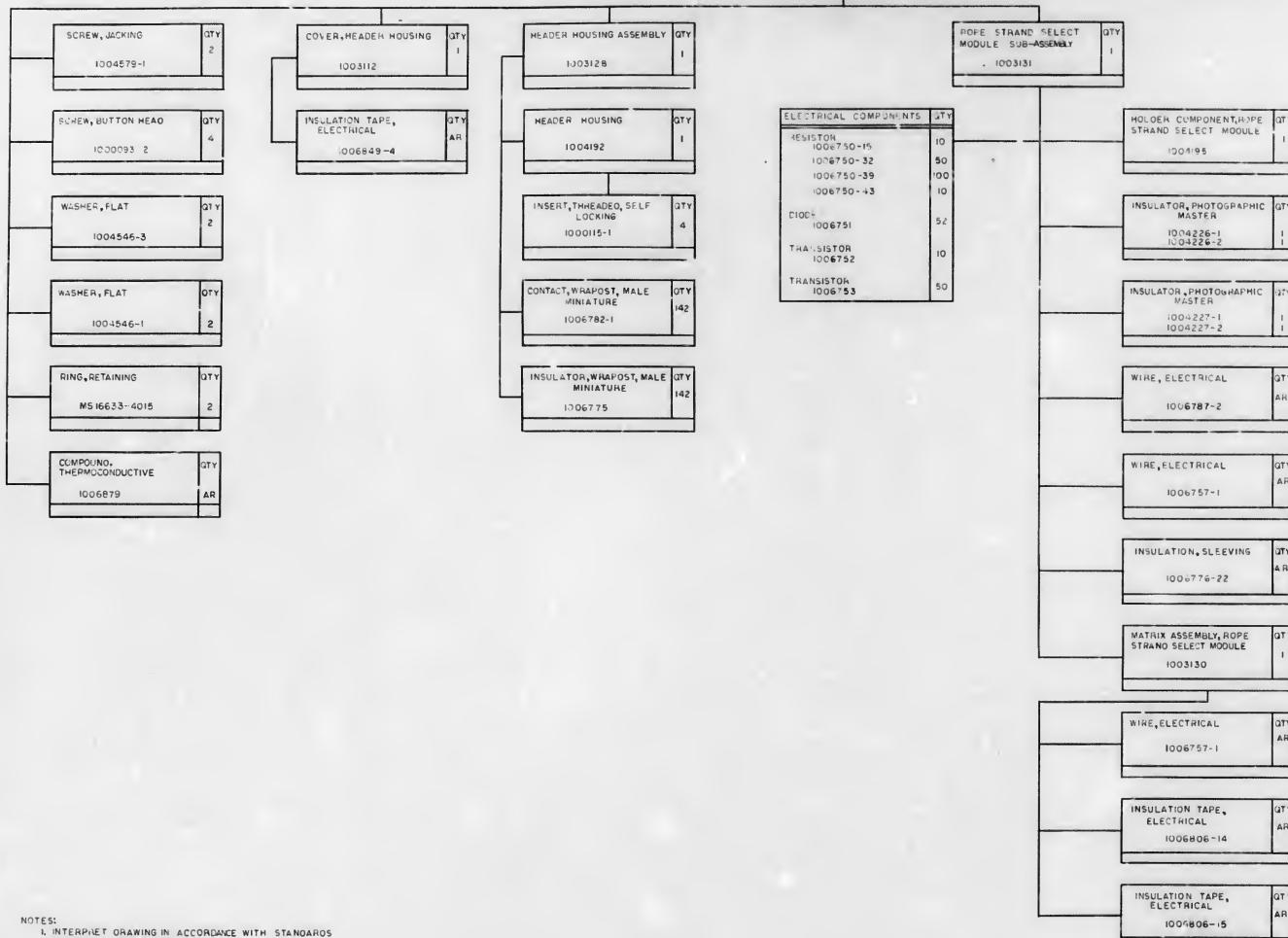


NOTES:

- 1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS
PREScribed BY MIL-D-70327
- 2. AR DENOTES AS REQUIRED

FOR INFORMATION ONLY

		QTY ITEM	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION		FROM NO.
LIST OF MATERIALS						
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE IN HUNDREDTHS OF AN INCH		MATERIAL		MANUFACTURER		
FRACTIONS DECIMALS ANGLES DO NOT SCALE THIS DRAWING MATERIAL		INSTRUMENTATION LAB CARRIAGE CO., INC. ONE RD.		MANAGED BY MAANNED SPACECRAFT CENTER HOUSTON, TEXAS		
DRAWN BY <i>F. E. F.</i> DATE <i>7/1/64</i> CHECKED BY <i>J. C. S.</i> APPROVED BY <i>L. J. T.</i> DESIGNED BY <i>J. C. S.</i> DRAWN BY <i>F. E. F.</i> APPROVAL <i>L. J. T.</i> DATE <i>7/1/64</i>						
HEAT TREATMENT		NASA APPROVAL <i>M. L. S.</i> DATE <i>7/1/64</i>		COOK IDENT NO	SIZE	NASA APPROVAL NO
NEXT ASSY USED ON		FINAL FINISH			E	1006201
APPLICATION		MIT APPROVAL <i>L. J. T.</i> DATE <i>7/1/64</i>		SCALE	WT	SHEET
						OF 1

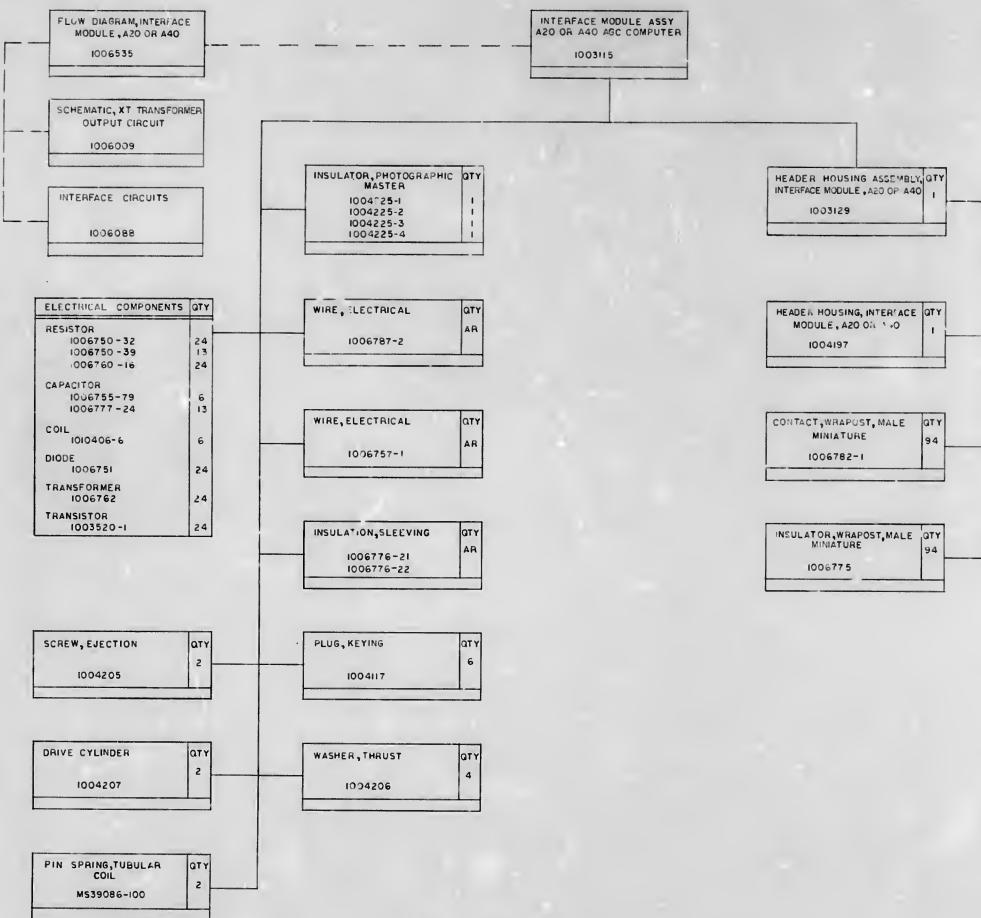


NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS
PRESCRIBED BY MIL-O-70327
2. AH DENOTES AS REQUIRED

FOR INFORMATION ONLY

CLASS B RELEASE TDR No. 03623 DATE
30 Oct 63

ITEM NO.	QTY	PART OR IDENTIFICATION NO.	NAME, LOCATION, OR DESCRIPTION
			LIST OF MATERIALS
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE IN THOUSANDS FRACTIONS DECIMALS ANGLES		M I T INSTRUMENTATION LAB CHAMBER ROOM	MANNED SPACECRAFT CENTER HOUSTON, TEXAS
DO NOT SCALE THIS DRAWING MATERIAL		DRAWN BY <i>[Signature]</i> DATE <i>[Date]</i> CHECKED <i>[Signature]</i> D-3-63	ROPE STRAND SELECT B30 MODULE FAMILY TREE
HEAT TREATMENT		APPROVED <i>[Signature]</i> APPROVAL DATE <i>[Date]</i>	CODE IDENT NO. SIZE NASA DRAVING NO.
NEXT ASSY	USED ON	RASA APPROVAL NO. <i>[Signature]</i> DATE <i>[Date]</i>	E 10C5202
APPLICATION		MIT APPROVAL NO. <i>[Signature]</i> DATE <i>[Date]</i>	WT. INCHES

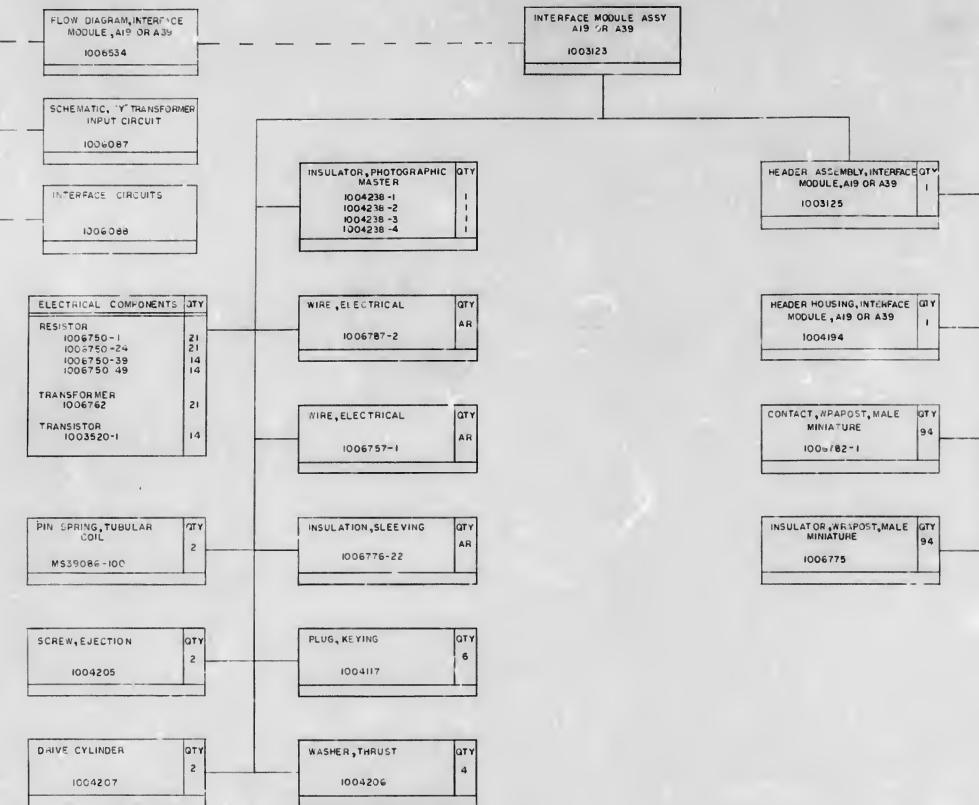


FOR INFORMATION ONLY

CLASS B RELEASE TDR No. D 3623 DATE
3 Oct 63

NOTE

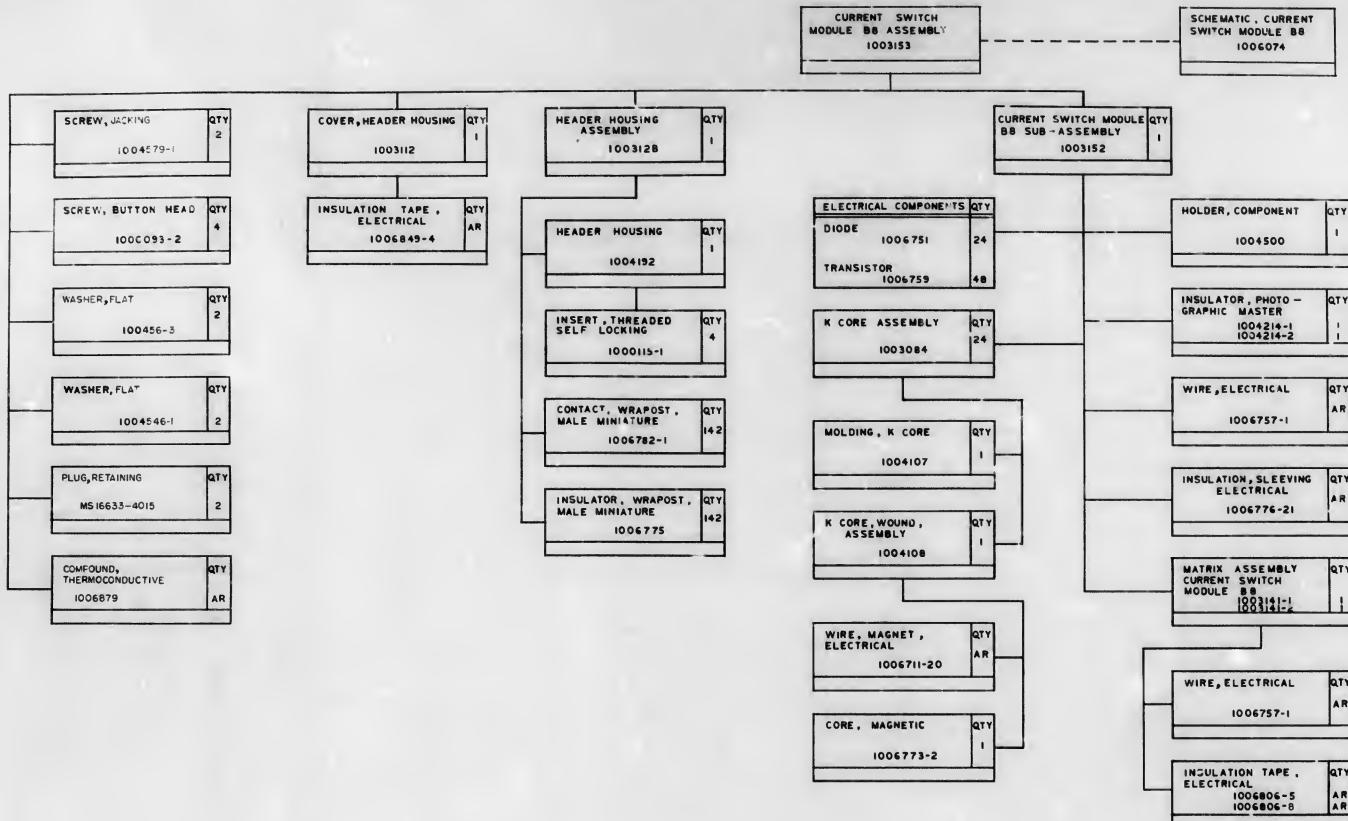
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS
PREScribed BY MIL-D-70327
2. AR DENOTES AS REQUIRED



FOR INFORMATION ONLY

NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS
PREScribed BY MIL-D-70327
2. AR DENOTES AS REQUIRED

CITY PROD	PART OF IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION		FIND NO.
		LIST OF MATERIALS		
	M 11	MANNEF SPACECRAFT CENTER HOUSTON, TEXAS		
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES TO .005 IN. FRACTIONS DECIMALS	INSTRUMENTATION LAB CANTERBURY LINED			
DO NOT SCALE THIS DRAWING MATERIAL	DRAWN BY DATE RE-DESIGNED BY APPROVED APPROVING RE-DESIGNED BY APPROVAL BY APPROVING RE-DESIGNED BY APPROVAL BY			
NEXT ASBY USED ON APPLICATION	LAST TREATMENT FINAL FINISH	NASA APPROVAL WHT APPROVAL	CODE REF. NO. S.I.C. NASA DRAWING NO.	
			E	1006204
		SCALE	WT	Sheet 1 of 1



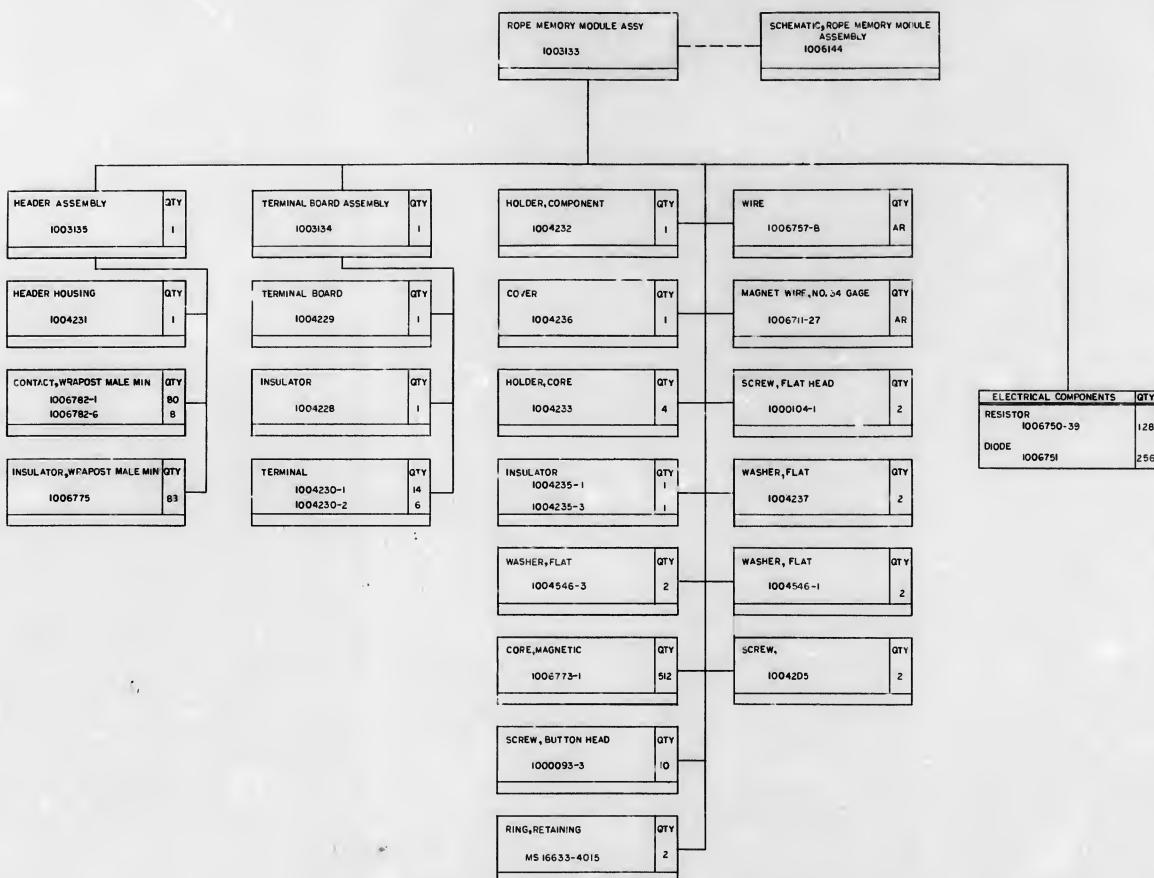
FOR INFORMATION ONLY

NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS
PREScribed BY MIL-D-70327
 2. AR DENOTES AS REQUIRED

		QTY 100	PART OF IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION		FILE NO.
				LIST OF MATERIALS		
UNLESS OTHERWISE SPECIFIED DIMENSIONS IN INCHES			M T Y	MANNED SPACECRAFT CENTER		
TOLERANCES OR FRACTIONS DEIMALS			INSTRUMENTATION LAB	HOUSTON, TEXAS		
DECIMALS			CAMBRIDGE			
ANGLES			DR. DATE 1/26/68			
DO NOT SCALE. P/N- DRAWING			CHECKED 1/26/68			
MATERIAL			APPROVAL			
HEAT TREATMENT			APPROVAL			
NEXT ASBY USED ON			RASA APPROVAL			
APPLICATION			MIT APPROVAL			
FINAL FINISH				CODE IDENT NO	RECEIVED	NASA DRAWING NO.
				E		1006205
				SCALE	WT	SHEET 1 OF 1

REVISION C 2/25/83
 BY: [Signature] DATE: [Signature]
 DESCRIPTION: ROPE MEMORY MODULE ASSEMBLY APPROVAL: [Signature]

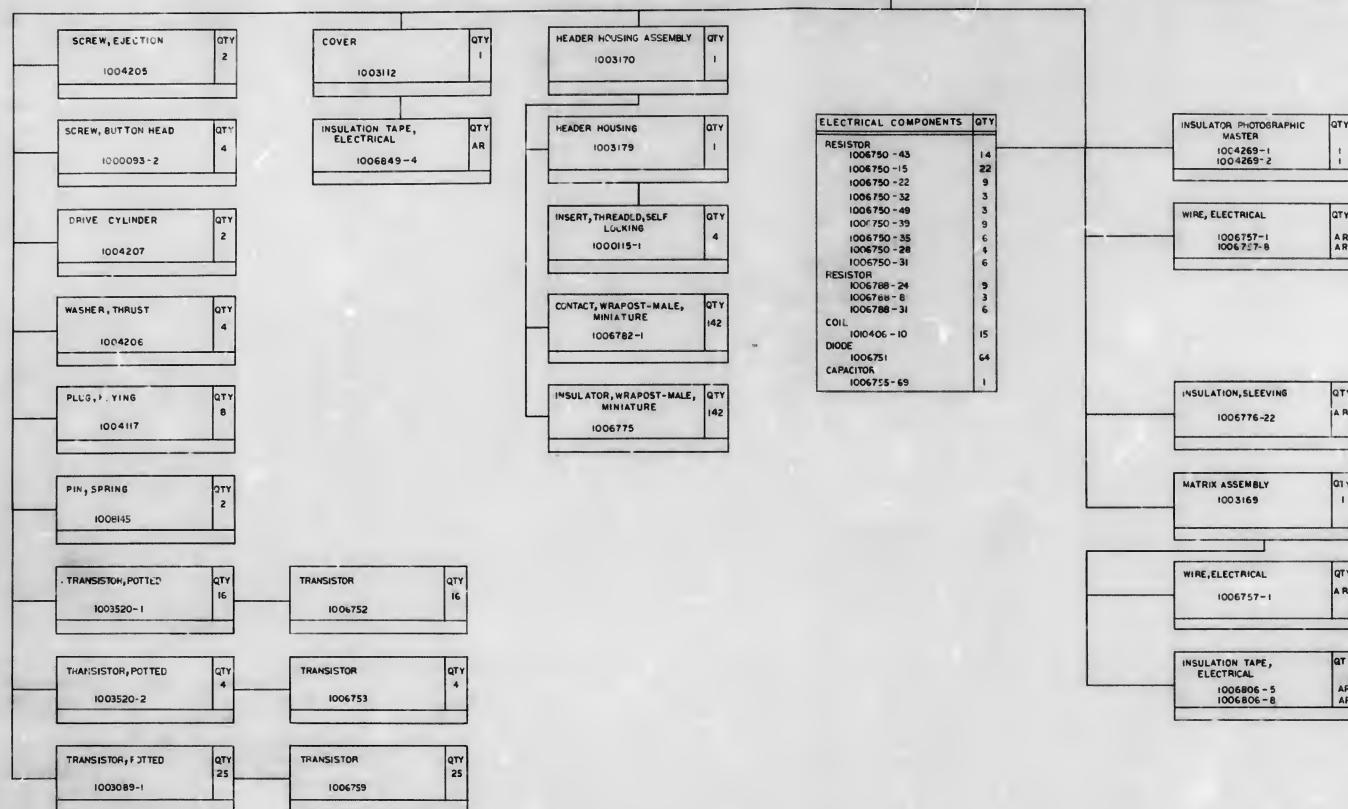


FOR INFORMATION ONLY
 CLASS B RELEASE TDR No. 03623 DATE
 3 Oct 83

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. "AR" DENOTES AS REQUIRED

QTY REQD		PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
LIST OF MATERIALS				
			INSTRUMENTATION LAB DATE 8-15-83 CHECKED [Signature] APPROVED [Signature]	MANNED SPACECRAFT CENTER HOUSTON, TEXAS
			DO NOT SCALE THIS DRAWING	
			MATERIAL	ROPE MEMORY MODULE FAMILY TREE
			HEAT TREATMENT	
			FINAL FINISH	
			APPLICATION	
			NASA APPROVAL [Signature]	CODE IDENT NO. NASA
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				SHEET 1 OF 1

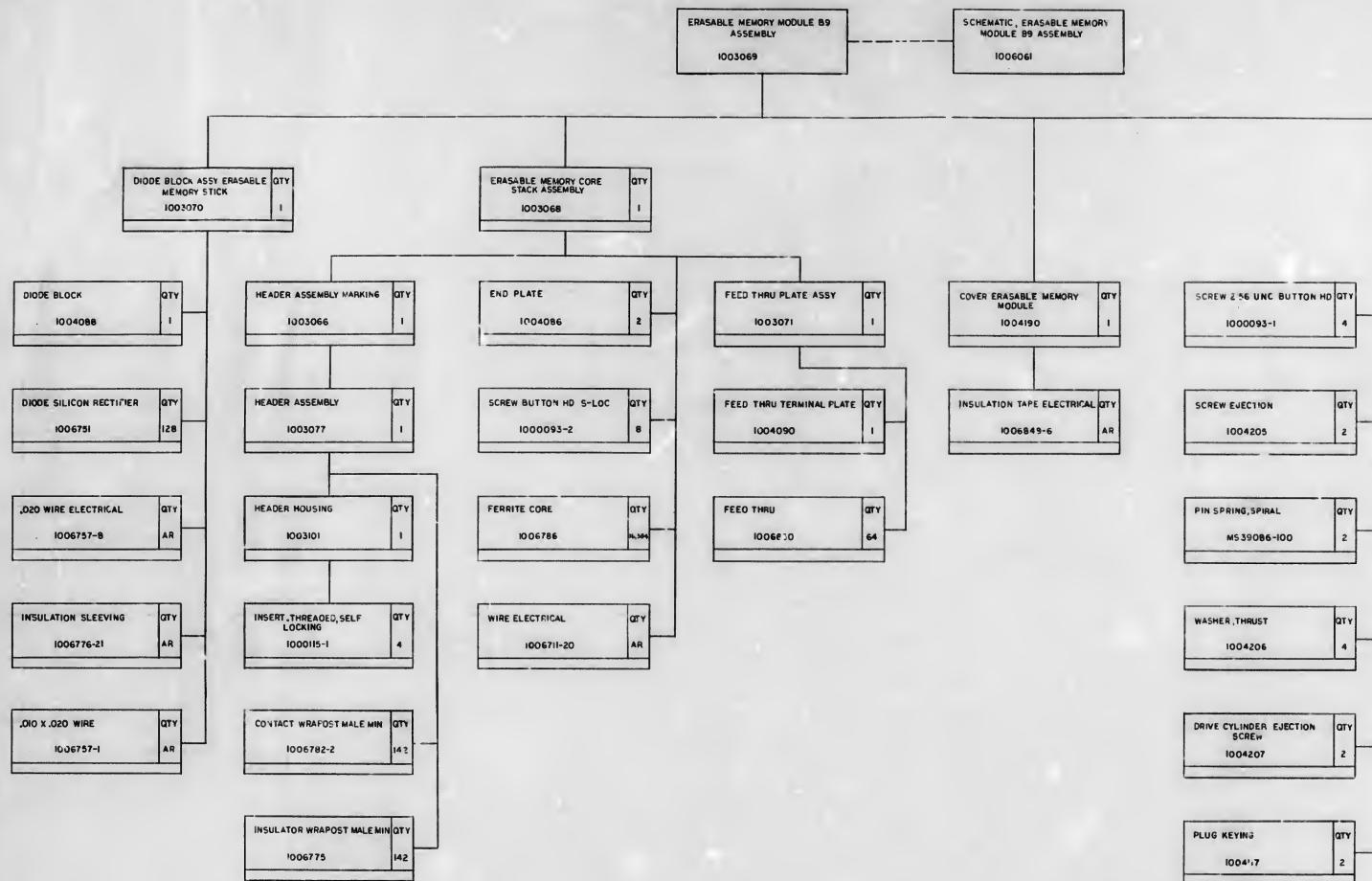
**FOR INFORMATION ONLY**

CLASS B RELEASE TDR No. 02/23 DATE 30/08/23

NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. AR DENOTES AS REQUIRED

L/T	PART OR IDENTIFYING NO.	DESCRIPTION	ITEM NO.
LIST OF MATERIALS			
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON FRCTIONS AND DECIMALS ARE IN INCHES ANGLES ARE IN DEGREES DO NOT SCALE THIS DRAWING MATERIAL			
DRAWN BY <i>[Signature]</i> DATE <i>[Date]</i> APPROVED BY <i>[Signature]</i> APPROVED BY <i>[Signature]</i> APPROVED BY <i>[Signature]</i>			
HEAT TREATMENT NEXT ASSY USED ON FINAL FINISH APPLICATION			
NASA APPROVAL <i>[Signature]</i> APPROVAL <i>[Signature]</i> APPROVAL <i>[Signature]</i> APPROVAL <i>[Signature]</i> APPROVAL <i>[Signature]</i> APPROVAL <i>[Signature]</i>			
CODE IDENT NO. E DATE DRAWN NO. 1006207 SHEET NO. 1 PAGE SHOWN NO. 1			



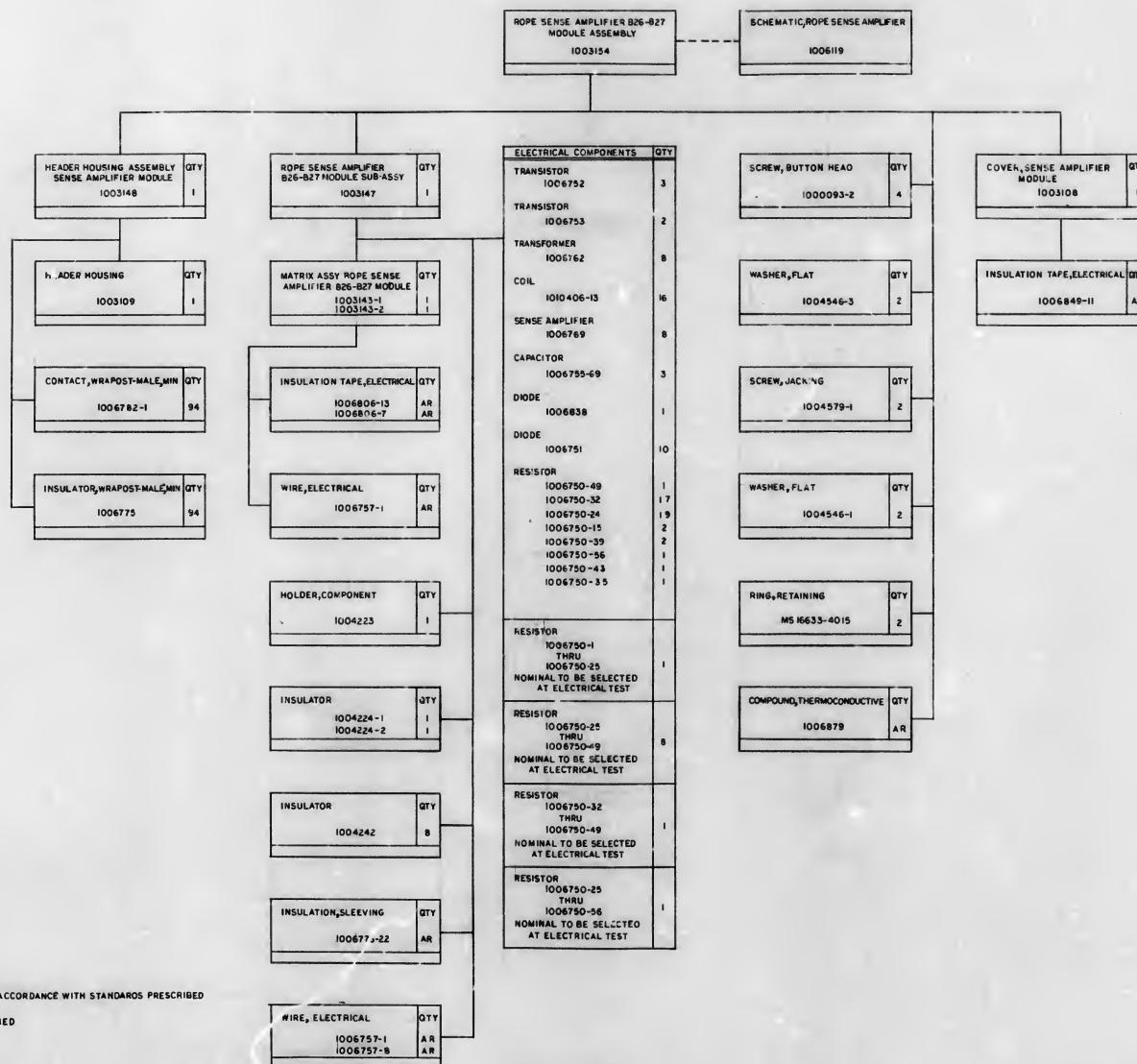
NOTE:

- 1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. AR DENOTES AS REQUIRED**

FOR INFORMATION ONLY

CLASS B RELEASE TDR NO. 03623

QTY	PART OR IDENTIFYING NO.	NONINTEGRAL OR DESCRIPTION
1	H-17 INSTRUMENTATION LAB CAMDEN, NEW JERSEY	L15 OF MATERIALS
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES OR FRACTIONS, DECIMALS AND ANGLES DO NOT SCALE THIS DRAWING MATERIAL		MANNED SPACECRAFT CENTER HOUSTON, TEXAS
DRAWN BY [Signature] DATE 01-20-67 CHECKED BY [Signature] 22-263 APPROVED BY [Signature]		ERASABLE MEMO MODULE B9 FAMILY MEMBER
HEAT TREATMENT		CODE IDENT NO. SIZE MASA DRAWING
1	NASA APPROVAL [Signature] 1-3-67	E 100620
APPLICATION		SCALE WT. SWEET
FINAL FINISH		
NEXT ASSY USED ON		



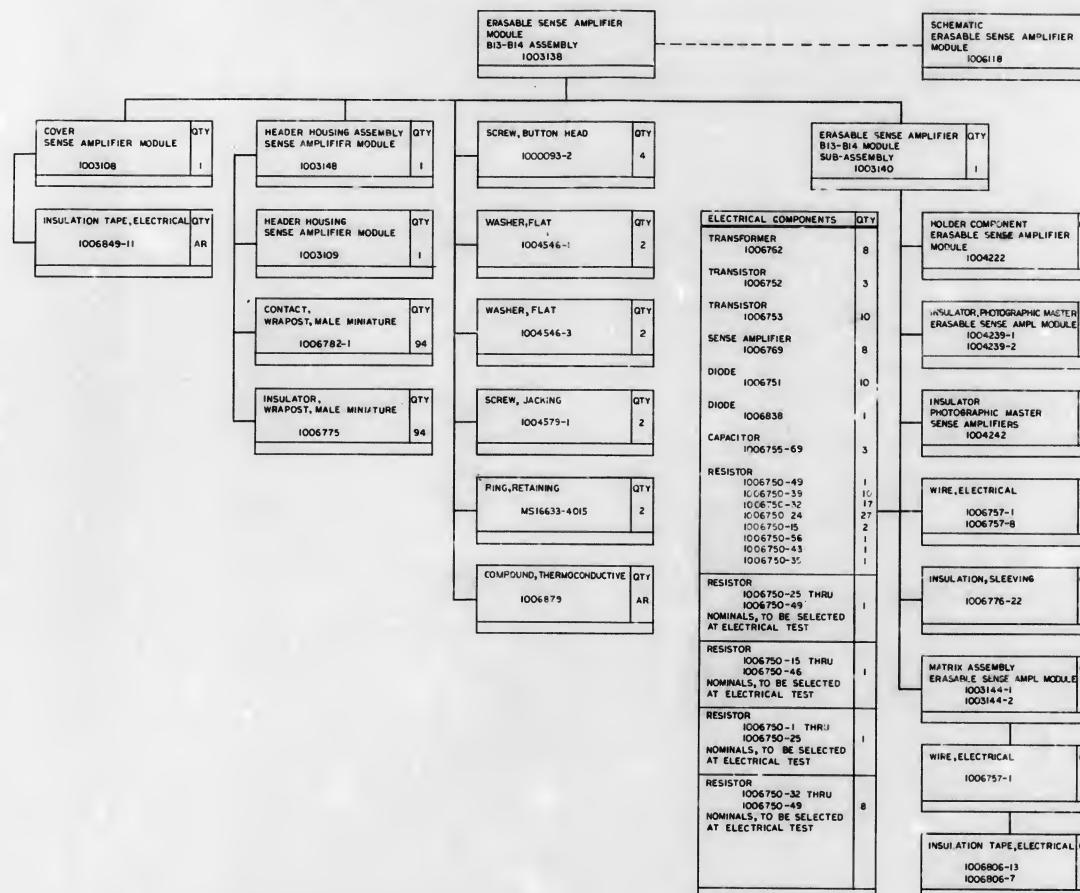
FOR INFORMATION ONLY

CLASS B RELEASE TDR No. 03C23 DATE
3 Oct 62

NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED
BY MIL-D-70527
2. AR DENOTES AS REQUIRED

QTY REQD	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION		FND NO
		ITEM	LIST OF MATERIALS	
1	INSTRUMENTATION LAB C-11			MANNED SPACECRAFT CENTER HOUSTON, TEXAS
ROPE SENSE AMPLIFIER B26-B27 MODULE FAMILY TREE				
NEXT ASSY	USED ON	HEAT TREATMENT	FINAL FINISH	
APPLICATION				
NASA APPROVAL		APPROVAL		
MIT APPROVAL		APPROVAL		
SCALE → ←	WT	INCHES	MM	OF

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED FOR TDRR 05110	05-11-00	05-11-00



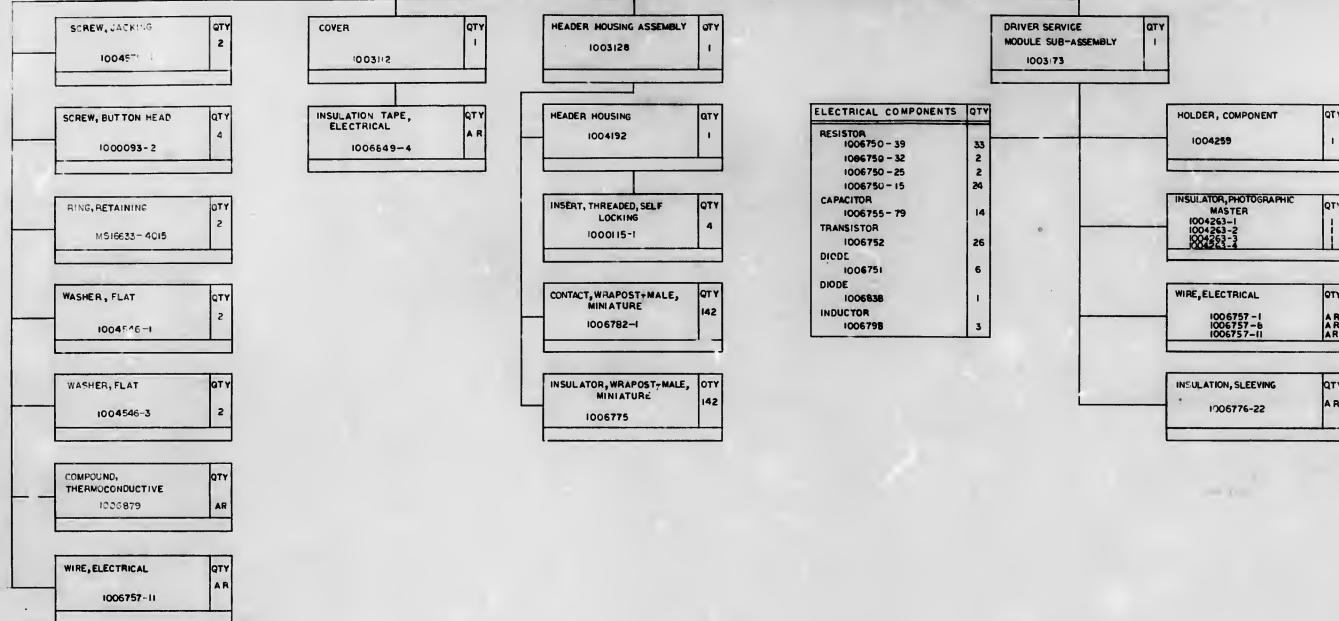
FOR INFORMATION ONLY

CLASS B RELEASE TDR NO. 03623 DATE 30-863

NOTE

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
 2. AR DENOTES AS REQUIRED

		QTY. ITEM	PART OF IDENTIFYING NO.	MANUFACTURE OR DESCRIPTION	FILED NO.
			LIST OF MATERIALS		
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES		M I T	MANNED SPACECRAFT CENTER		
TOLERANCES ON		INSTRUMENTATION LAB	HOUSTON, TEXAS		
FRACTIONS	DECIMALS	COMMISSION NO.			
DEGREES	MINUTES	REF. NO.			
DO NOT SCALE THIS DRAWING		DETAILED BY DATE			
MATERIAL		CHECKED BY			
HEAT TREATMENT		APPROVED BY			
NEXT ASSY	USED ON	NASA APPROVED	CODE IDENT NO.	NASA DRAWING NO.	
APPLICATION		W/	E	1006210	
		MIT APPROVAL	SCALE	WT	HEET
		W/	1		OF



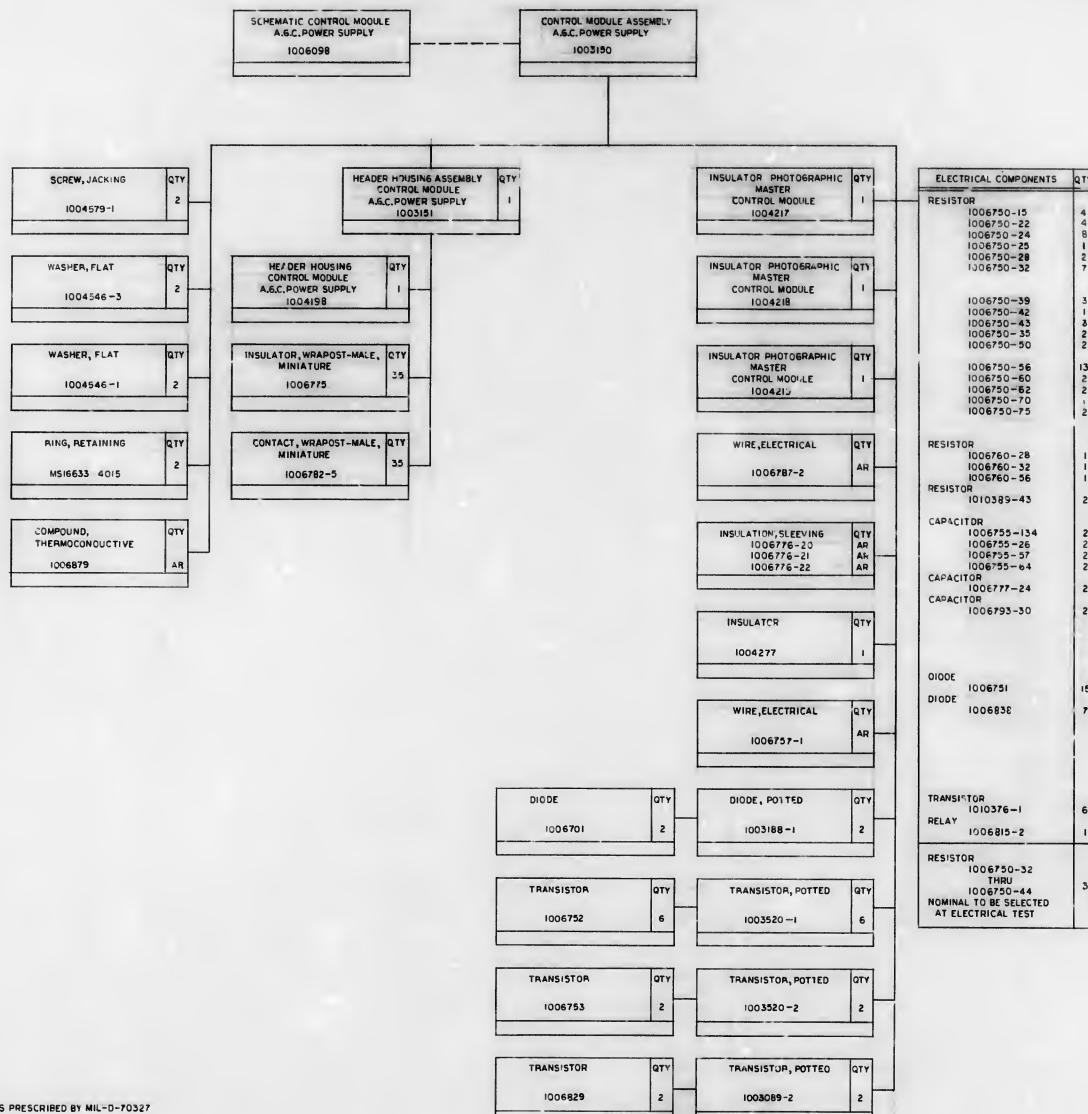
CLASS B RELEASE TDR No. 03622 DATE 3 Dec 63

NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. AR DENOTES AS REQUIRED

ITEM	QTY OR REQS.	PART OR IDENTIFYING NO.	DESCRIPTION	FIND NO.
LIST OF MATERIALS				
<p>UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE IN INCHES DECIMALS ARE IN INCHES ANGLES ARE IN DEGREES DO NOT SCALE THIS DRAWING</p> <p>INSTRUMENTATION LAB JOHNSON SPACE CENTER HOUSTON, TEXAS</p> <p>DRIVER SERVICE B7 MODULE FAMILY TREE</p> <p>CODE SHEET NO. E DRAWING NO. 1006211</p> <p>REAR TREATMENT MAA APPROV'D 6/10/63 APPROV'D 6/10/63</p> <p>APPLICATION</p>				
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REVISIONS			
S/N	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDAR 05110	12-17-05	Bethel



NOTES

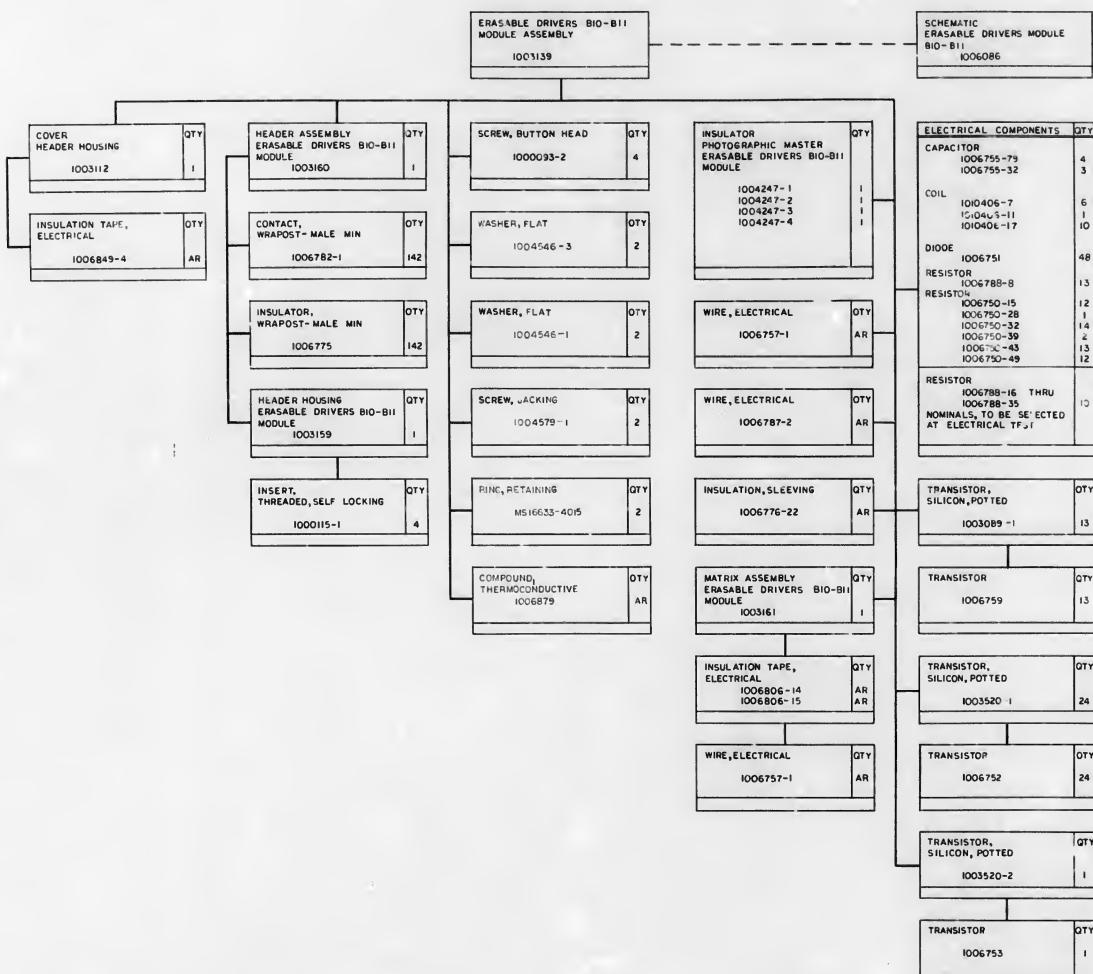
I INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2 AR DENOTES AS REQUIRED

FOR INFORMATION ONLY

CLASS B RELEASE TDR No. 03623 DATE 30-8-13

QTY	ITEM NO.	PART OR IDENTIFYING NO.	REASON FOR RETURN	FILE NO.
			NON-QUALITY OR DEFECTIVE	
LIST OF MATERIALS				
MANNED SPACECRAFT CENTER HOUSTON, TEXAS				
CONTROL MODULE B12 AGC POWER SUPPLY FAMILY TREE				
CODE IDENT NO.		DATE	NASA DRAWING NO.	
1006212		10/20/68	1006212	
SCALE		WT.	SHEET OF	

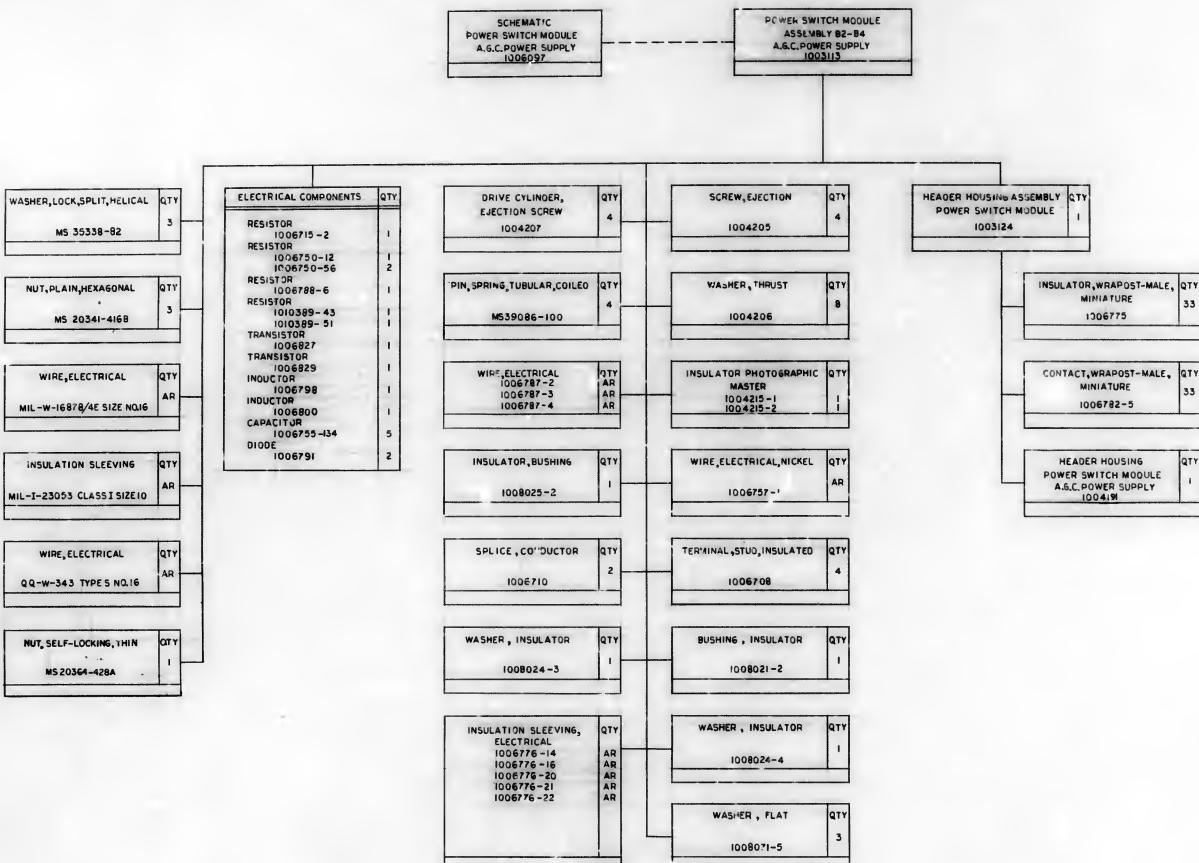


FOR INFORMATION ONLY
CLASS B RELEASE TDR No. 03623 DATE 30-863

NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS
PRESCRIBED BY MIL-O-70327
2. AR DENOTES AS REQUIRED

		QTY / ITEM NO.	PART OF IDENTIFYING NO.	REINSTATEMENT OR DESCRIPTION	FILE IN
		LIST OF MATERIALS			
		MANNED SPACECRAFT CENTER HOUSTON, TEXAS			
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE IN THOUSANDS OF AN INCHES		MANNED SPACECRAFT CENTER HOUSTON, TEXAS			
FRACTIONS DECIMALS ANGLES DEGREES MINUTES SECONDS		MANNED SPACECRAFT CENTER HOUSTON, TEXAS			
DO NOT SCALE THIS DRAWING MATERIAL		DRAWN <i>10-16-64</i> CHECKED <i>10-16-64</i> APPROVED <i>10-16-64</i> INSTRUMENTATION LAB			
HEAT TREATMENT		RASA APPROVED <i>10-16-64</i> MT APPROVAL <i>10-16-64</i>			
NEXT ASSY USED ON APPLICATION		EUDGE UNIT NO. SIZE E RASA DRAWING NO. 1006213			
FINAL FRESH		SCALE WT SHEET OF			

REVISIONS		03623	
SYM	DESCRIPTION	DATE	APPROVAL



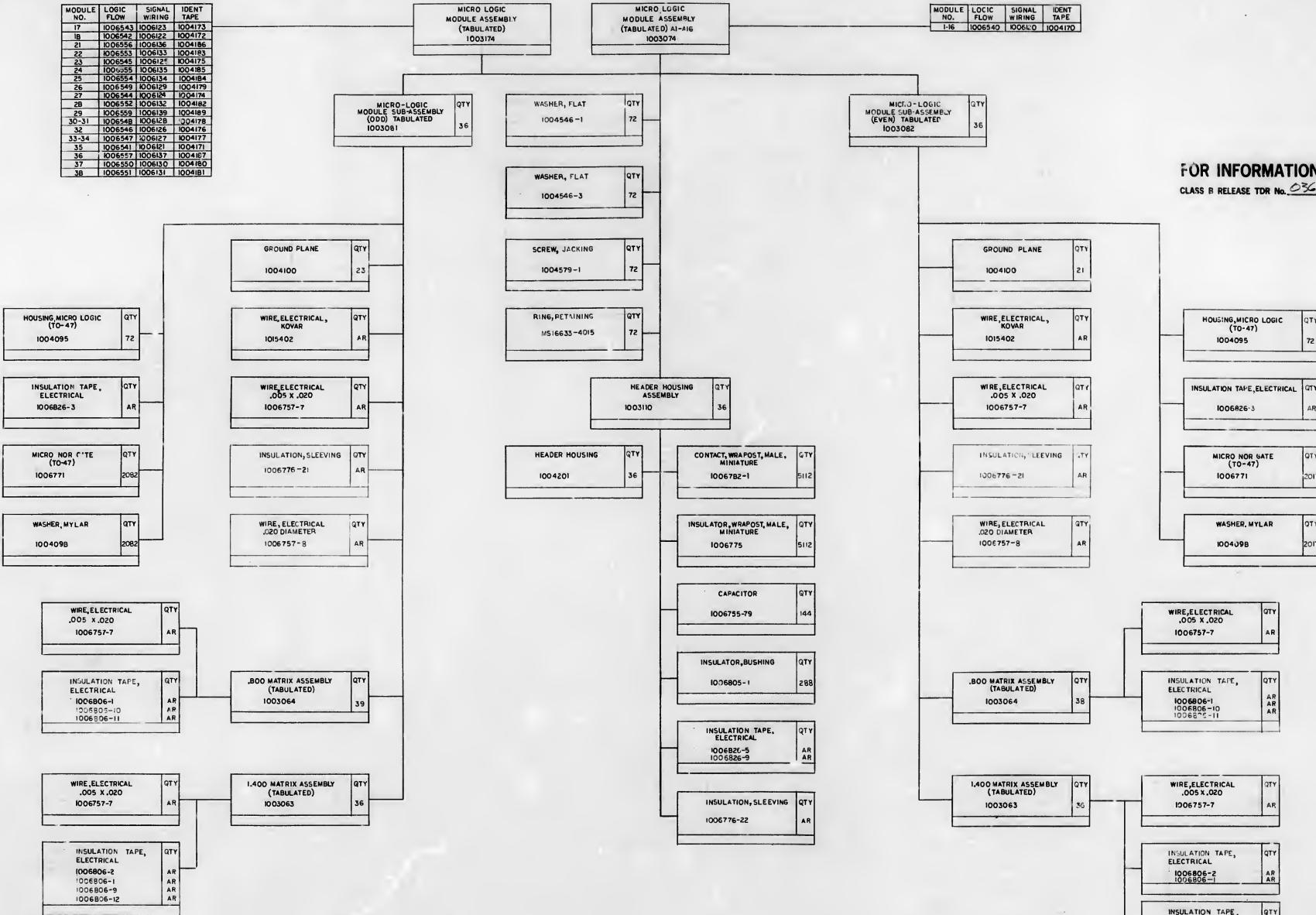
FOR INFORMATION ONLY

CLASS B RELEASE TDR No. 03623

NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. AR DENOTES AS REQUIRED

		QTY. PCT.	PART OR IDENTIFYING NO.	MANUFACTURE OR DESCRIPTION	FIR NO.
LIST OF MATERIALS					
	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE IN HUNDREDTHS OF AN INCH		INSTRUMENTATION LAB CARRIAGE HOUSE 100-100	MANNED SPACECRAFT CENTER HOUSTON, TEXAS	
	FRACTIONS DECIMALS ANGLES DEGREES MINUTES SECONDS		DRAGAN ET AL DATE ISSUED APRIL 1968 APPROVAL APPROVAL	POWER SWITCH MODULE B2-B4 FAMILY TREE	
	DO NOT SCALE TYPE DRAWING MATERIAL		APPROVAL APPROVAL	CODE IDENT NO E	MASA DRAWING NO 1006214
	HEAT TREATMENT		NASA APPROVAL APR 7-68	SCALE	WT
	FINAL FINISH		APR 7-68	IN	SHEET
NEXT AUST	USE/D ON		MIT APPROVAL APR 7-68	1	OF 1
APPLICATION					



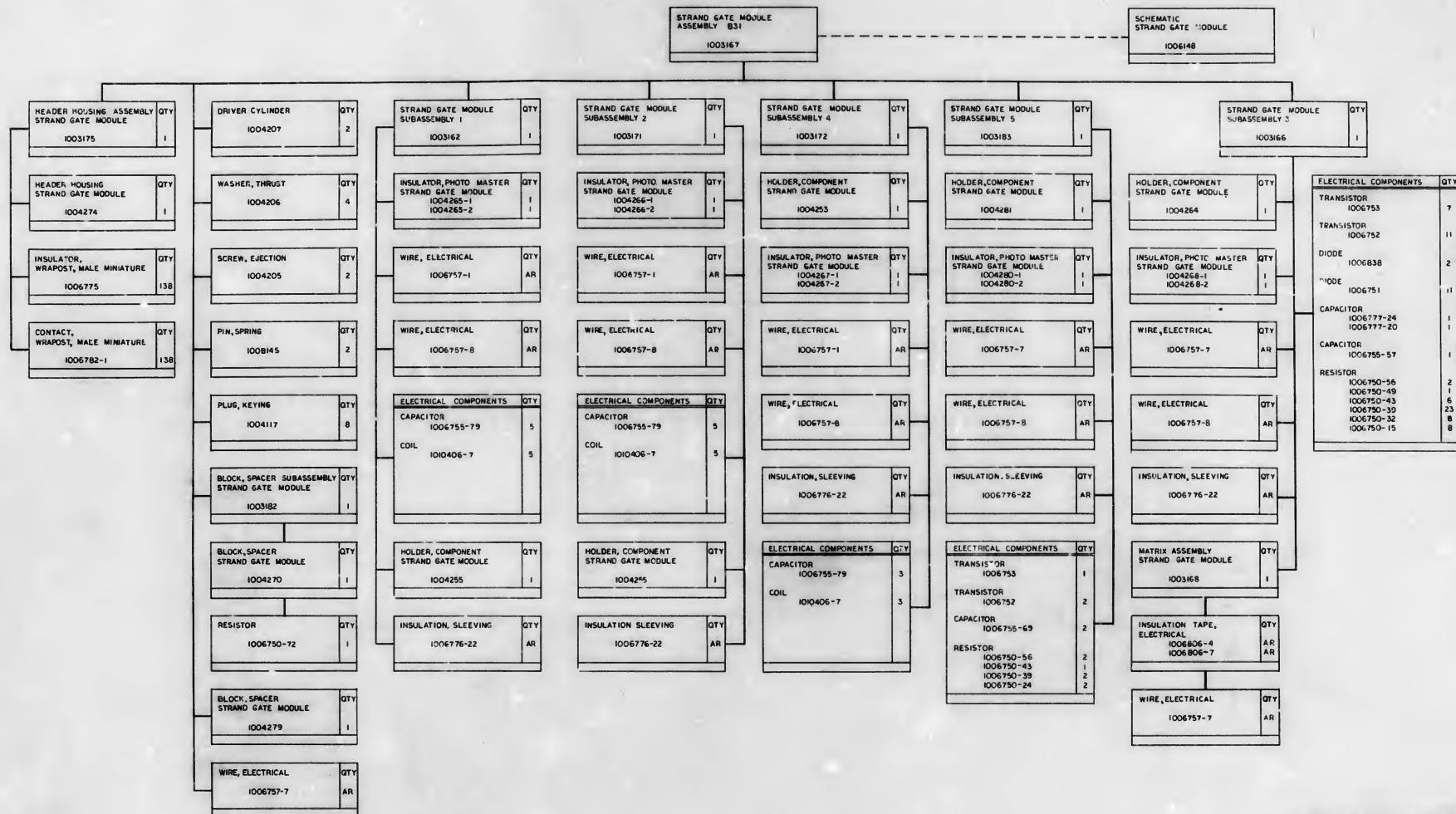
FOR INFORMATION ONLY

CLASS B RELEASE TDR No. 03623 DATE 2-5-76

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS
PREScribed BY MIL-D-70327
2. AP DENOTES AS REQUIRED

QTY REQD	PART OR IDENTIFYING NO.		NOMENCLATURE OR DESCRIPTION	
			LIST OF MATERIALS	
	M I T INSTRUMENTATION LAB Cambridge, Mass. REC'D BY REC'D		MANAGED SPACERACT CENTER HOUSTON, TEXAS	
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES DEGREES ARE IN RADIANS		JANUARY 1965		
FRONT BACK SIDE		DRAWN BY: DAVIS, J. L. S. APPROVED BY: <i>[Signature]</i> APPROVAL NO. <i>[Signature]</i>		
DO NOT SCALE THIS DRAWING				
MATERIALS				
H				
HEAT TREATMENT		NASA APPROVAL NO. 11-1-2		
NEXT ASSTY USED ON		CODE IDENT NO. E		
APPLICATION		NASA DRAWING NO. 1006215		
FINAL FINISH		SCALE IN ONE WT. SHEET 1 OF 3		



FOR INFORMATION ONLY

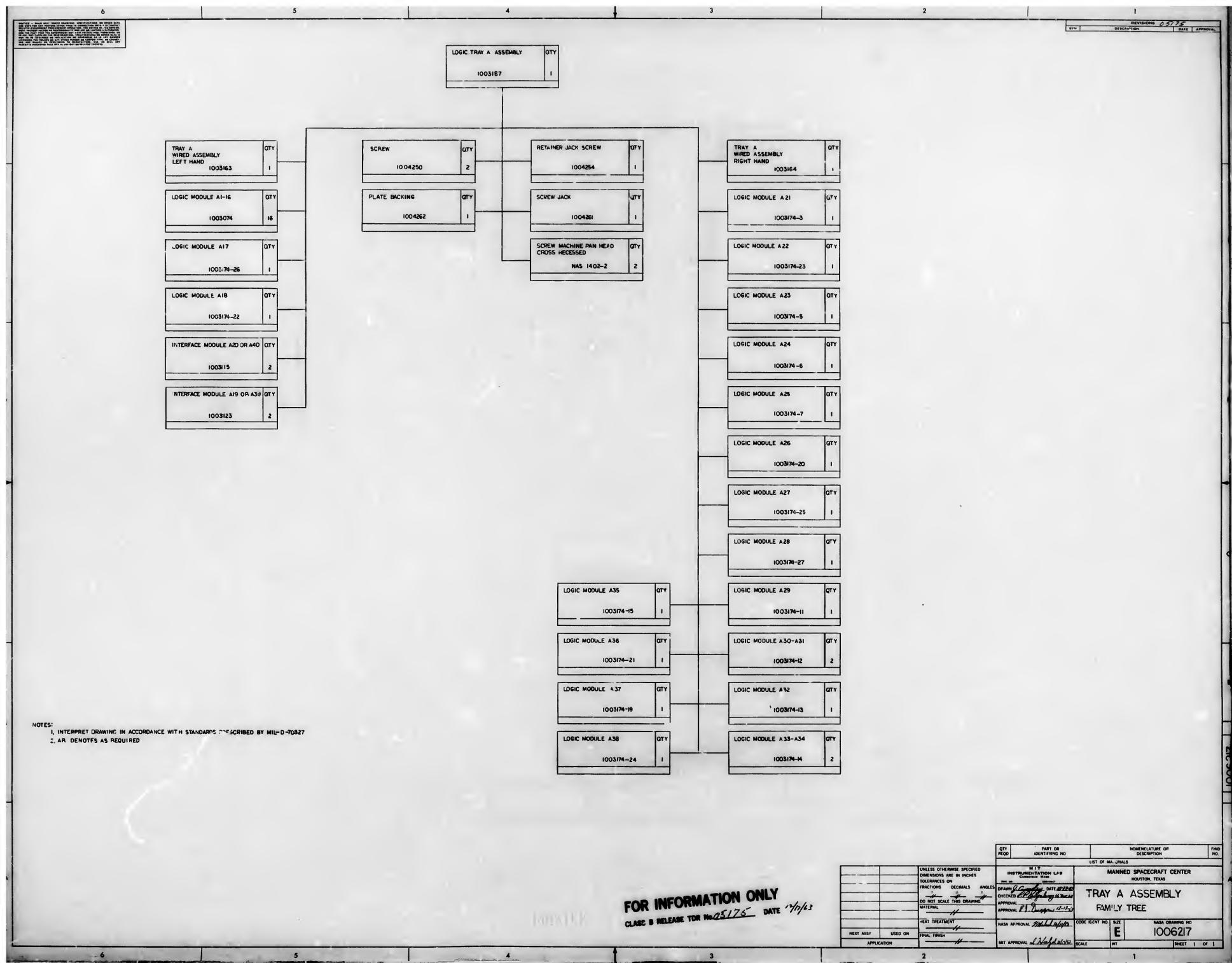
CLASS & RELEASE TDR No _____ DATE _____

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED
BY MIL-D-70327

2.AR DENOTES AS REQUIRED

QTY	REF ID	IDENTIFYING NO.	DESCRIPTION	PAGE NO.
LIST OF MATERIALS				
MATERIALS				
UNLESS OTHERWISE SPECIFIED ALL LENGTHS ARE IN INCHES TOLERANCES OR FRACTIONS DECIMALS AND ANGLES = ± DO NOT SCALE THIS DRAWING MATERIAL				
INSTRUMENTATION LAB CAMPBELL ROAD DRAWN BY J. M. GATES DATE 2/1/91 CHECKED BY J. L. GATES APPROVED BY J. L. GATES APPROVED BY J. L. GATES APPROVED BY J. L. GATES				
HEAT TREATMENT				
NASA APPROVAL BY J. L. GATES DATE 2/1/91 APPLICATION FINAL FINISH MET APPROVAL BY J. L. GATES DATE 2/1/91				
CODE IDENT NO	BUS	MANNED SPACECRAFT CENTER HOUSTON, TEXAS		PAGE NO.
E		STRAND GATE MODULE ASSEMBLY B31 FAMILY TREE		1006216
SCALE	WT			SHEET OF



NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT AND THE GOVERNMENT CONTRACTOR HEREBY DISCLAIM ANY LIABILITY FOR AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE CONSTRUED AS GRANTING ANY LICENSE, EXPRESS OR IMPLIED, UNDER LICENSE TO THE HOLDER OR ANY OTHER PERSON OR CORPORATION, IN CONVENTION WITH ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REQUIREMENTS:

1. GENERAL:

4. SUPPLIER SHALL CONFORM TO MIL-Q-9858.

- B. MARKING: UNITS SHALL BE MARKED IN ACCORDANCE WITH ND 1002019, WITH THE NASA DRAWING NUMBER, REVISION LETTER AND DASH NUMBER, THE MANUFACTURER'S NAME AND PART NUMBER. PACKAGING SHALL BE MARKED INTERNALLY AND EXTERNALLY WITH THE MANUFACTURER'S NAME AND/OR SYMBOL, PART NUMBER, LOT OR SERIAL NUMBER, NASA DRAWING NUMBER, REVISION LETTER AND DASH NUMBER, AND QUANTITY ENCLOSED.

2. ACCEPTANCE AND INSPECTION:

A. MECHANICAL REQUIREMENTS:

- (1) MARKING: IN ACCORDANCE WITH NOTE 1B.
 - (2) A CERTIFICATE OF COMPLIANCE WITH THE MATERIAL AND FINISH REQUIREMENTS SHALL ACCOMPANY EACH SHIPMENT.
 - (3) DIMENSIONS: SEE VIEWS.
 - (4) HARDWARE: EACH UNIT SHALL BE SUPPLIED WITH HARDWARE INDICATED IN DETAIL A.

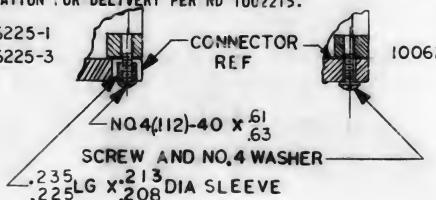
3 DESIGN:

- A. MATERIAL. SHELL AND - ALUMINUM PER QQ-A-591, CADMIUM CLAMP PLATED PER QQ-P-416, TYPE II, CLASS 3, OLIVE DRAB COLOR.
ENGAGING DEVICE - CRES PER QQ-S-763, CLASS 302
EXTENSION CONDITION A,
SCREWS AND WASHERS - STEEL CADMIUM PLATED PER QQ-P-416,
TYPE II, CLASS 3
BUS BAR - BRASS PER QQ-B-626, 1/2 HARD, HOT TIN DIPPED PER MIL-T-1072Z TYPE II.

- SLEEVE BUSSBAR BUSHINGS AND RISER BLOCKS: NYLON PER MJL-P-17091

B. 1006225-1 SHALL BE DESIGNED FOR USE WITH CONNECTOR PER NASA DRAWING 1010815. 1006225-2 SHALL BE DESIGNED FOR USE WITH CONNECTORS PER NASA DRAWINGS 1010816 AND 1010817. 1006225-3 SHALL BE DESIGNED FOR USE WITH CONNECTOR PER NASA DRAWING 1010818

4. PREPARATION FOR DELIVERY PER ND 1002215.

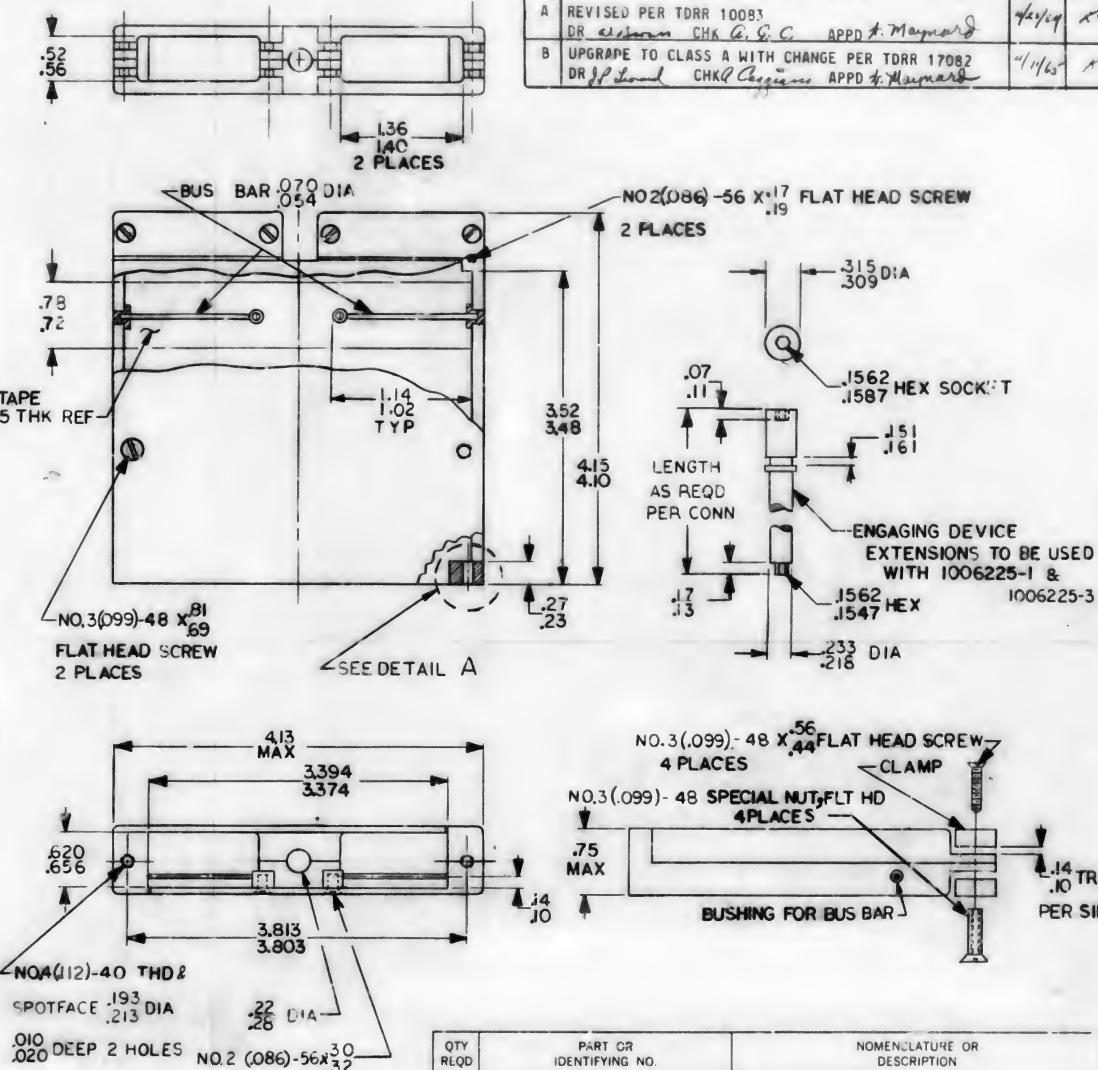


DETAIL A

DASH NO.	
-1	WITH ENGAGING DEVICE TO FIT 1010815
-2	WITHOUT ENGAGING DEVICE
-3	WITH ENGAGING DEVICE TO FIT 1010818

PROCURE ONLY FROM APPROVED SOURCES LISTED IN
ND 1002034 FOR THIS DRAWING.

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327



.010 DEEP 2 HOLES .020 NO.2 (086)-56x ^{.30} _{.32}		QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO		
LIST OF MATERIALS							
	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON FRACTIONS DECIMALS ANGLES \pm \pm \pm	RAYTHEON CO. LEXINGTON, MASS. CONTRACT NO. NAS 9-498		MANNED SPACECRAFT CENTER HOUSTON, TEXAS			
	DO NOT SCALE THIS DRAWING MATERIAL SEE NOTE	DRAWN <u>BD/STO</u> DATE <u>28 JUN 64</u> CHECKED <u>J. W. Koenig</u> 1371864 APPROVAL <u>J. W. Koenig</u> 1371864 APPROVAL <u>J. W. Koenig</u> 1371864 APPROVAL <u>J. W. Koenig</u> 1371864		SHELL, ELECTRICAL CONNECTOR			
	HEAT TREATMENT FINAL FINISH SEE NOTE	NASA APPROVAL <u>John C. H. 1/1/64</u> MIT APPROVAL <u>John C. H. 1/1/64</u> MIT APPROVAL <u>John C. H. 1/1/64</u>		CODE IDENT NO.	SIZE	SPECIFICATION CONTROL DRAWING	
NEXT ASSY	USED ON			—	C	NASA DRAWING NO 1006225	
APPLICATION		SCALF NONE		WT	SHEET		OF

NOTES:

1. GENERAL REQUIREMENTS:
A. SUPPLIER SHALL CONFORM TO MIL-Q-9058.

B. PACKAGES SHALL BE PERMANENTLY AND LEGIBLY MARKED, PER ND 1002019, WITH THE MANUFACTURER'S NAME AND/OR SYMBOL, PART NUMBER, NUMBER OF PARTS INCLUDED, AND NASA PART NUMBER (DRAWING NUMBER AND REVISION LETTER).

2. ACCEPTANCE AND INSPECTION REQUIREMENTS (SAMPLE)

- A. DIMENSIONS: AS DELINEATED.
B. MATERIAL: SEE TABLE I.
REQUIREMENTS LISTED IN TABLE I SHALL BE CERTIFIED WITH EACH LOT SHIPPED.
C. FINISH AND APPEARANCE:
(1) THE CARDS SHALL HAVE NO ROUGH OR BURRED EDGES.
(2) THEY SHALL SHOW NO DELAMINATION OR BLISTERING ON THE EDGES NOR BLISTERING IN EXCESS OF 0.060 DIAMETER ANYWHERE.
(3) ALL CHARACTERS AND LINWORK SHALL BE PRINTED ON THE MIDDLE STRATA AND SHALL BE SHARP AND LEGIBLE BEFORE AND AFTER LAMINATING
D. PACKAGING: CARDS SHALL BE PACKAGED IN MOISTURE PROOF BAG, ENVELOPE, OR WRAPPING.
E. STRAIGHTNESS & PARALLELISM: EDGES WITHIN 0.003

3. DESIGN REQUIREMENTS:
A. STORAGE LIFE: 5 YEARS MINIMUM AT ROOM TEMPERATURE AND HUMIDITY WITHOUT DELAMINATION OR CURLING MORE THAN 0.12.
B. AMBIENT TEMPERATURE RANGE: -40°F TO +140°F.

TABLE I

DASH NO.*	MATERIAL
-000	WHITE POLYVINYL CHLORIDE SHEET PER L-V-351, PRINTED & BONDED WITH AN ACRYLIC ADHESIVE BETWEEN 2 LAYERS OF POLYETHYLENE TERAPHTHALATE FILM (MYLAR) CONFORMING TO MIL-I-631 TYPE G, FORM F, GRADE A, CLASS 1. TOTAL THICKNESS 0.012 MAXIMUM
-001	IBM FORM U11897 OR EQUIVALENT

-000	1, 2, 3
-001	1A, 1B, 2A, 2B, 2C1, 2D, 2E
DASH NO.	APPLICABLE NOTES
	NOTE APPLICATION

(B) REPLACES REVA WITH CHANGE

*ORIGINAL CONFIGURATION IDENTIFIED BY THE DWG NO.
AND A -000 SUFFIX.

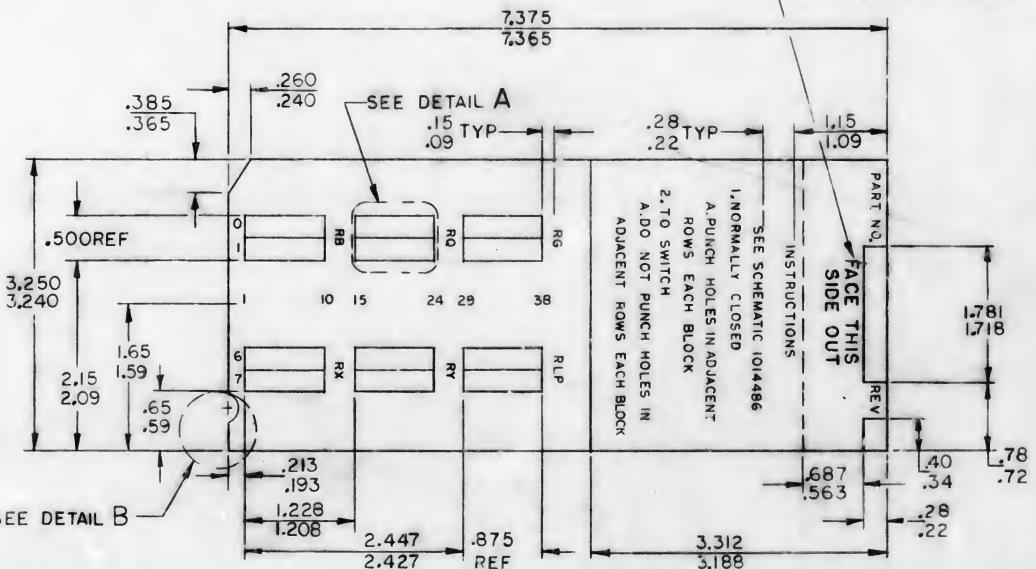
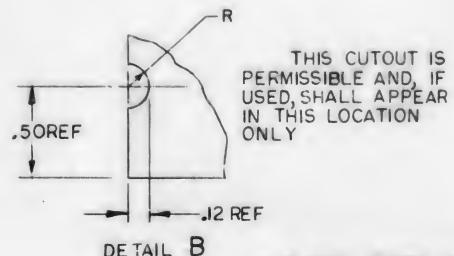
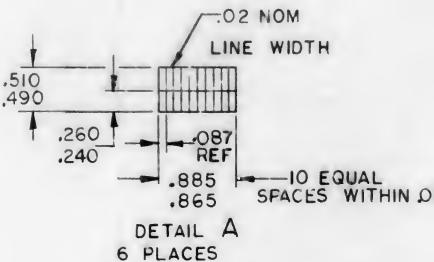
PROCURE ONLY FROM APPROVED SOURCES LISTED IN ND 1002034 FOR THIS DRAWING.

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

1006228 B

REVISIONS			
SYM	DESCRIPTION 07222	DATE 3/16/65	APPROVED

B | REPLACES REVA WITH CHANGE PER TDPR 17079 3/16/65



QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
LIST OF MATERIALS			
	RAYTHEON	MANNED SPACECRAFT CENTER	
	LEXINGTON, MASS.	HOUSTON, TEXAS	
	CONTRACT NO. FNP-12775	CARD, TABULATING INC	
	DRAWN BY [Signature] DATE 18 JAN 65	SPECIFICATION CONTROL DRAWING	
	CHECKED [Signature]	CODE IDENT NO. C	NASA DRAWING NO.
	APPROVAL D.O.Brown 2/26/65	SIZE C	1006228
	APPROVAL K.W.Thorne 2/26/65	SCALE 1 / 1	WT
	APPROVAL J.D.Brown 2/26/65	SHEET 1 OF 1	
	NASA APPROVAL C.C. [Signature] 1/16/65		
	MIT APPROVAL D.Hughes 3/16/65		
	MIT APPROVAL C.Sherley 3/16/65		

NOTICE - WHITE GOVERNMENT DISCLOSURE INFORMATION ON A REPORT MADE BY THE FBI TO THE GOVERNMENT OF CANADA IS AS FOLLOWS:
RECORDED INFORMATION CONCERNING DRUGS, THE UNITED STATES GOVERNMENT HAS BEEN ADVISED THAT THE GOVERNMENT OF CANADA IS CONCERNED
ABOUT THE POSSIBILITY THAT THE GOVERNMENT OF CANADA HAS BEEN ASSOCIATED WITH THE DRUG TRADE. IT IS REQUESTED THAT THE GOVERNMENT OF CANADA
LET THE GOVERNMENT OF CANADA KNOW, IN ITS JUDGEMENT, WHETHER OR NOT THE INFORMATION CONTAINED IN THE REPORT IS ACCURATE.
THE GOVERNMENT OF CANADA HAS BEEN ADVISED THAT THE GOVERNMENT OF CANADA IS CONCERNED ABOUT THE POSSIBILITY THAT THE GOVERNMENT OF CANADA HAS BEEN ASSOCIATED WITH THE DRUG TRADE. IT IS REQUESTED THAT THE GOVERNMENT OF CANADA LET THE GOVERNMENT OF CANADA KNOW, IN ITS JUDGEMENT, WHETHER OR NOT THE INFORMATION CONTAINED IN THE REPORT IS ACCURATE.

REQUIREMENTS:

- A. UNITS SHALL MEET THE REQUIREMENTS OF MIL-C-22403 (HEP) TYPE I, CLASS 1, STYLES D WITH THE ADDITIONS AND EXCEPTIONS SPECIFIED HEREIN. SUBMITTAL OF A P/L PRODUCTION SAMPLE SHALL NOT BE REQUIRED.
 - B. THE SUPPLIER SHALL CONFORM TO THE QUALITY ASSURANCE PROVISIONS AS CONTAINED IN ND 101540A CLASS 3.
 - C. UNITS SHALL BE DESIGNED TO MEET THE APOLLO ENVIRONMENTAL CRITERIA SPECIFICATION DATED MARCH 25, 1963 OF THE NATIONAL AERONAUTICS AND SPACE ADMINISTRATION MANNED SPACECRAFT CENTER, HOUSTON, TEXAS, PARAGRAPHS 3.2.1 THROUGH 3.2.1.16 WITH THE FOLLOWING EXCEPTIONS:
 - (1) PARAGRAPH 3.2.1.8.2 JUST SIZE SHALL BE 0.0000 INCH MAXIMUM.
 - (2) DELETE PART (b) OF PARAGRAPH 3.2.1.8.2, THAT IS "SIZE DISTRIBUTION - AT LEAST 90% ARE BETWEEN 0.00002" #0.00006 INCH IN SIZE".
 - D. MARKING: UNITS SHALL BE MARKED IN ACCORDANCE WITH ND 1002019 ANN AS SPECIFIED HEREIN. UNLESS OTHERWISE SPECIFIED MANUFACTURER SHALL BE SILK-SCEMED USING RED COLOR IN ACCORDANCE WITH FEDERAL STANDARD 595 COLOR NUMBER 21105.
 - (1) MARK IN LOCATION INDICATED ON DRAWING "DESISSCATED - DO NOT OPEN UNTIL READY FOR USE OR INSPECTION".
 - (2) MARK ON TOP PANEL OF COVER "CAUTION - DELICATE ELECTRONIC ASSEMBLY - THIS SIDE UP".

(3) MARK IN LOCATION INDICATED ON DRAWING "CAUTION - SECURE ALL LATCHES BEFORE LIFTING". THE WORD CAUTION SHALL BE PRINTED IN 1/8 INCH HIGH CHARACTERS AND THE REMAINING WORDS SHALL BE PRINTED IN 3/16 HIGH CHARACTERS.

(4) EACH CONTAINER SHALL HAVE AN IDENTIFICATION PLATE IN ACCORDANCE WITH NASA DRAWING 10200B-1 IN THE LOCATION INDICATED IN DRAWING. THE NAME AND PART NUMBER SHALL BE THE SAME AS THE TITLE, DRAWING NUMBER AND Revision LETTER MENTIONED.

(5) THE BOTTOM CUSHION IN THE CONTAINER SHALL BE PROVIDED WITH TWO PERMANENTLY ATTACHED METAL PLATES OR EQUIVALENT IN LOCATIONS INDICATED ON DRAWING SPECIFYING THE DESCRIPTIVE REQUIREMENT.

(6) MARK IN LOCATION INDICATED ON DRAWING "INSPECT EQUIPMENT AND REPLACE DEFECTIVE IF INDICATOR IS PINK".

(7) MARK DIRECTLY UNDER EACH TIE DOWN AND LIFT RIB "SLING LIFT HERE".

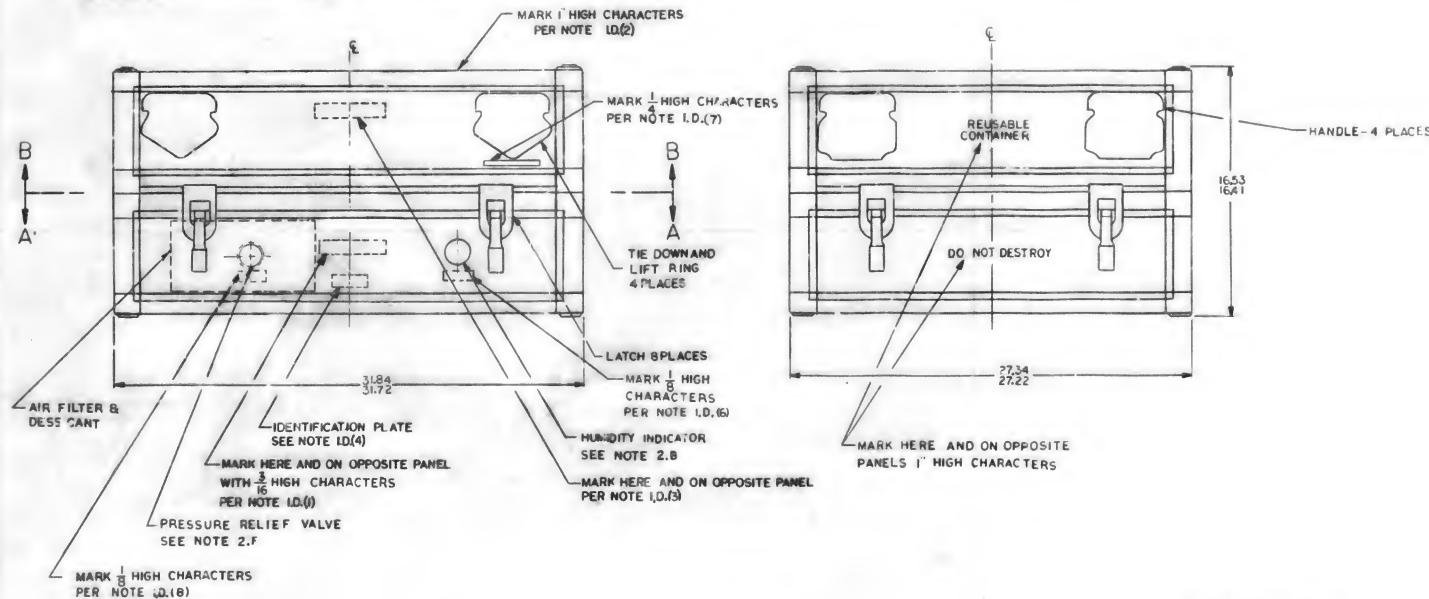
(8) MARK IN LOCATION INDICATED ON DRAWING "TWO-NUT AUTOMATIC RELIEF VALVE. DEPRESSURE CABE BEFORE OPENING CONTAINER".

2. ACCEPTANCE AND INSPECTION: (100 PERCENT)

- A. A CERTIFICATE OF COMPLIANCE WITH ALL THE REQUIREMENTS SPECIFIED HEREIN SHALL ACCOMPANY EACH SHIPMENT.
- B. UNITS SHALL BE PROVIDED WITH A HUMIDITY INDICATOR IN ACCORDANCE WITH MIL-H-2806C.
- C. UNITS SHALL BE PROVIDED WITH A DESCICCANT HOLDER AND DUST SHIELD LOCATED BEHIND PRESSURE RELIEF VALVE.
- D. SECURITY SEAL: PROVISION SHALL BE MADE SO THAT LATCHES CAN BE SECURED WITH A MULTI-STRAIN WIRE-LEAD SEAL.
- E. UNITS SHALL BE PROVIDED WITH POLYURETHANE FOAM CUSHIONS BONDED TO THE INTERIOR SURFACES IN THE CONFIGURATION INDICATED ON DRAWING. DENSITY OF POLYURETHANE FOAM SHALL BE 2-1/2 POUNDS PER CUBIC FOOT.
- F. UNITS SHALL BE PROVIDED WITH AN AUTOMATIC PRESSURE RELIEF VALVE TO RELIEVE PRESSURE DIFFERENTIALS IN EXCESS OF 0.5 PSI.

3. DESIGN:

A. FINISH: FINISH SHALL BE IN ACCORDANCE WITH MIL-C-22443 EXCEPT ZINC CHROMATE PRIMER PER MIL-P-5B5 SHALL BE FOLLOWED BY 2 COATS OF ENAMEL PER NASA DRAWING 101619A.



PROCURE ONLY FROM APPROVED SOURCES . LISTED IN ND 1302034 FOR THIS DRAWING

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-7038

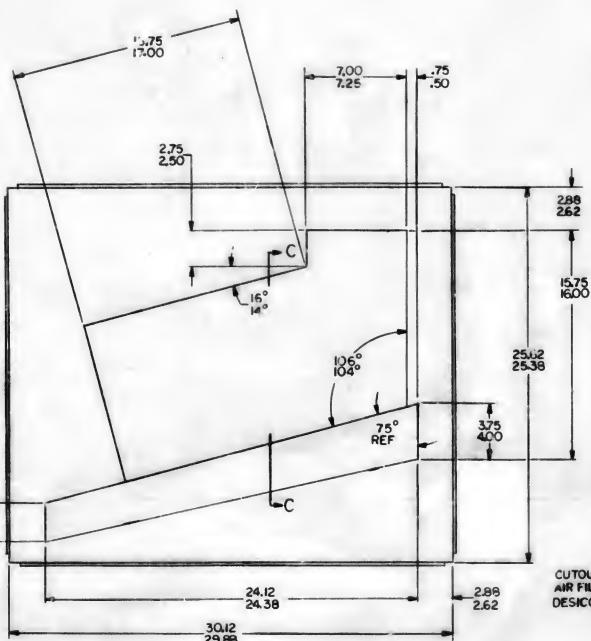
<u>A</u>	<u>A</u>
SHEET 1	SHEET 2
REVISION STATUS OF SHEETS	

		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON
FRACTIONAL	DECIMAL	*
DO NOT SCALE THIS DRAWING		
MATERIAL		
SEE NOTE		

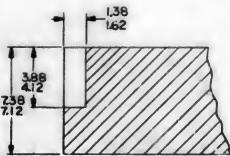
QTY REQD	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION		FIR NO
LIST OF MATERIALS				
<p>RAYTHEON LEXINGTON MASS. CONTRACT NO. DA-35-74-C-1000</p> <p>MANNED SPACECRAFT CENTER HOUSTON, TEXAS</p>				
DRAWN BY <i>[Signature]</i>	DESIGNED BY <i>[Signature]</i>			
CHECKED BY <i>[Signature]</i>	APPROVED BY <i>[Signature]</i>			
APPROVAL BY <i>[Signature]</i>	APPROVAL BY <i>[Signature]</i>			
APPROVAL BY <i>[Signature]</i>	APPROVAL BY <i>[Signature]</i>			
SABA APPROVAL BY <i>[Signature]</i>	APPROVAL BY <i>[Signature]</i>			
HTT APPROVAL BY <i>[Signature]</i>	APPROVAL BY <i>[Signature]</i>			
HTT APPROVAL BY <i>[Signature]</i>	APPROVAL BY <i>[Signature]</i>			
<p>CONTAINER, SHIPPING AND STORAGE - APOLLO MAIN DISPLAY</p> <p>SPECIFICATION CONTROL DRAWING</p>				
CODE REIN. NO.	SIZE	NASA DRAWING NO.		
	D	1D06229		
SCALE	NONE	WT	SHEET	1 OF 2

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
-	CLASS B RELEASE PER TBMR 07656		
A	CHANGED PEA TORN 10446 DR. S. L. CHS	APR 16 1966	K. J.

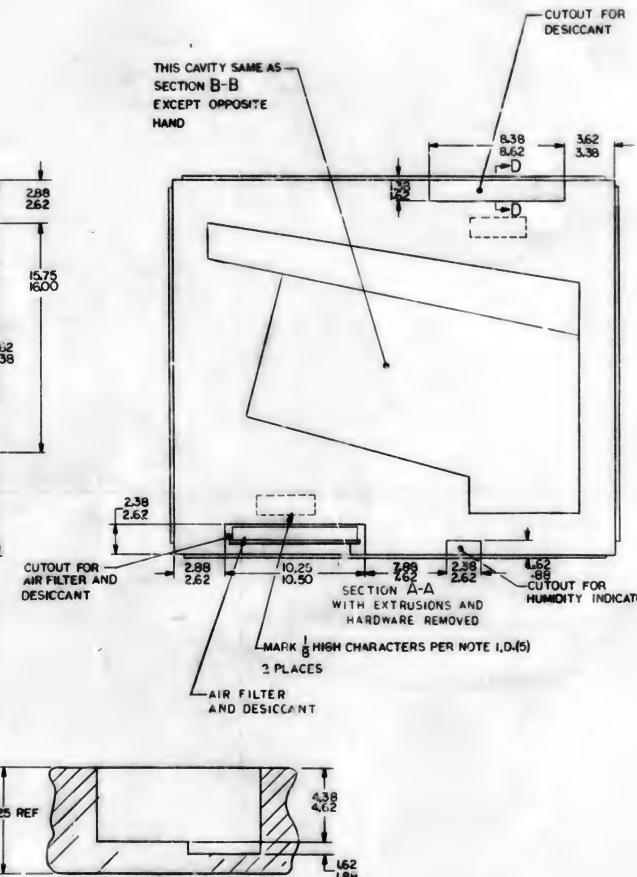
NOTES - THIS DRAWING SHOWS THE DESIGNATION OF VARIOUS PARTS AND THE DIMENSIONS FOR THE ASSEMBLY. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO DETERMINE THE MATERIALS, PROCESS, AND METHODS TO BE USED IN THE MANUFACTURE OF THIS PART. THE CONTRACTOR SHALL NOT MAKE ANY CHANGES IN THE DESIGN OR IN THE METHODS OF MANUFACTURE WITHOUT THE APPROVAL OF THE CONTRACTING OFFICER. THE CONTRACTOR SHALL NOT RELEASE THIS DRAWING TO ANY OTHER CONTRACTOR OR SUBCONTRACTOR WITHOUT THE APPROVAL OF THE CONTRACTING OFFICER. THIS DRAWING MAY NOT BE COPIED OR REPRODUCED.



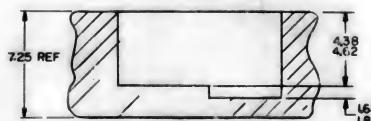
SECTION B-B
WITH EXTRUSIONS AND
HARDWARE REMOVED



SECTION D-D
ROTATED 90° CCW



SECTION A-A
WITH EXTRUSIONS AND
HARDWARE REMOVED



SECTION C-C
ROTATED 90° CCW

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-TQ927

REVISIONS			
ITEM	DESCRIPTION	DATE	APPROVED
-	CLASS B RELEASE PER TDRR 07636		
1	CHANGED PER TDRR 10446 DR 57041a ENCL Drawing NPD 17 May 1965	17 May 1965	

FOR INFORMATION ONLY
CLASS B RELEASE TDRR NO. 07636 DATE 17/6/65

QTY REQ'D	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION		FIND NO
		LIST OF MATERIALS		
1	RAYTHEON CO. LEXINGTON, MASS. CONTRACT NO. NASA-144	MANNED SPACECRAFT CENTER HOUSTON, TEXAS		
		CONTAINER, SHIPPING AND STORAGE - APOLLO MAIN DISPLAY SPECIFICATION CONTROL DRAWINGS		
		SEE NOTE		
		NASA APPROVAL	CODE IDENT NO. SIZE	NASA DRAWING NO
		MIT APPROVAL	D	1006229
		MIT APPROVAL		
		MIT APPROVAL		
		SCALE WORK WT		
		SHEET 2 OF 2		

REVISIONS

REV	DESCRIPTION	DATE APPROVED
-	CLASS B RELEASE PER TDRR 07035	

REQUIREMENTS:

1. GENERAL:

A. UNITS SHALL MEET THE REQUIREMENTS OF MIL-C-22443 (WEP) TYPE I, CLASS 1, STYLE D WITH THE ADDITIONS AND EXCEPTIONS SPECIFIED HEREIN. SUBMITTAL OF A PREPRODUCTION SAMPLE SHALL NOT BE REQUIRED.

B. THE SUPPLIER SHALL CONFORM TO THE QUALITY ASSURANCE PROVISIONS AS CONTAINED IN HD 1014034 CLASS 3.

C. UNITS SHALL BE DESIGNED TO MEET THE APOLLO ENVIRONMENTAL CRITERIA SPECIFICATION D-ED MARCH 25, 1963 OF THE NATIONAL AERONAUTICS AND SPACE ADMINISTRATION MANNED SPACECRAFT CENTER, HOUSTON, TEXAS, PARAGRAPHS 3.2.1 THROUGH 3.2.1.16 WITH THE FOLLOWING EXCEPTIONS:

(1) PARAGRAPH 3.2.1.8.2 DUST SIZE SHALL BE 0.0004 INCH MAXIMUM.

(2) DELETE PART (b) OF PARAGRAPH 3.2.1.8.2, THAT IS "SIZE DISTRIBUTION - AT LEAST 90% ARE BETWEEN 0.00002 AND 0.00008 INCH IN SIZE".

D. MARKING: UNITS SHALL BE MARKED IN ACCORDANCE WITH HD 1002019 AND AS SPECIFIED HEREIN. UNLESS OTHERWISE SPECIFIED MARKING SHALL BE SILK-SCREENED USING RED COLOR IN ACCORDANCE WITH FEDERAL STANDARD 595 COLOR NUMBER 21105.

(1) MARK IN LOCATION INDICATED ON DRAWING "DESIPLICATED - DO NOT OPEN UNTIL READY FOR USE OR INSPECTION".

(2) MARK ON TOP PANEL OF COVER "CAUTION - DELICATE ELECTRONIC ASSEMBLY - THIS SIDE UP".

- (3) MARK IN LOCATION INDICATED ON DRAWING "CAUTION - SECURE ALL LATCHES BEFORE LIFTING". THE WORD CAUTION SHALL BE PRINTED IN 1/4 INCH HIGH CHARACTERS AND THE REMAINING WORDS SHALL BE PRINTED IN 3/16 HIGH CHARACTERS.
- (4) EACH CONTAINER SHALL HAVE AN IDENTIFICATION PLATE IN ACCORDANCE WITH NASA DRAWING 1020004 IN THE LOCATION INDICATED HEREON, THE NAME AND PART NUMBER SHALL BE THE SAME AS THE TITLE, DRAWING NUMBER AND REVISION LETTER HEREON.
- (5) THE BOTTOM CUSHION IN THE CONTAINER SHALL BE PROVIDED WITH TWO PERMANENTLY ATTACHED METAL PLATES OR EQUIVALENT IN LOCATIONS INDICATED ON DRAWING SPECIFYING THE DESCANTIC REQUIREMENT.
- (6) MARK IN LOCATION INDICATED ON DRAWING "INSPECT EQUIPMENT AND REPLACE DESCANTIC IF INDICATOR IS PINK".
- (7) MARK DIRECTLY UNDER EACH TIE DOWN AND LIFT RING "SLING LIFT HERE".
- (8) MARK IN LOCATION INDICATED ON DRAWING "TWO-WAY AUTOMATIC RELIEF VALVE. DEPRESS CORE BEFORE OPENING CONTAINER".

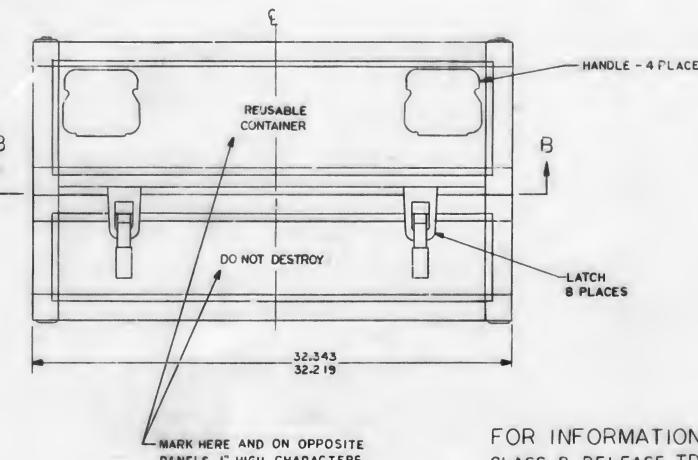
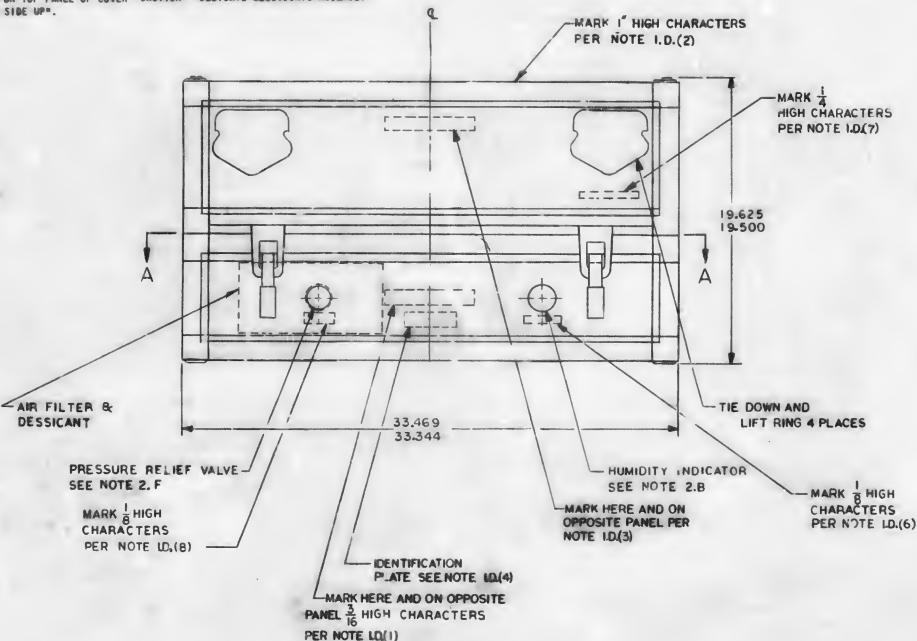
2. ACCEPTANCE AND INSPECTION: (100 PERCENT)

- A. A CERTIFICATE OF COMPLIANCE WITH ALL THE REQUIREMENTS SPECIFIED HEREIN SHALL ACCOMPANY EACH SHIPMENT.
- B. UNITS SHALL BE PROVIDED WITH A HUMIDITY INDICATOR IN ACCORDANCE WITH MIL-I-26860.
- C. UNITS SHALL BE PROVIDED WITH A DESCANTIC HOLDER AND DUST SHIELD LOCATED BEHIND PRESSURE RELIEF VALVE.
- D. SECURITY SEAL: PROVISION SHALL BE MADE SO THAT LATCHES CAN BE SECURED WITH A MULTI-STRAINED WIRE-LEAD SEAL.
- E. UNITS SHALL BE PROVIDED WITH POLYURETHANE FOAM CUSHIONS BONDED TO THE INTERIOR SURFACES IN THE CONFIGURATION INDICATED ON DRAWING. DENSITY OF POLYURETHANE FOAM SHALL BE 2-1/2 POUNDS PER CUBIC FOOT.
- F. UNITS SHALL BE PROVIDED WITH AN AUTOMATIC PRESSURE RELIEF VALVE TO RELIEVE PRESSURE DIFFERENTIALS IN EXCESS OF 0.5 PSI.

3. DESIGN:

- A. FINISH: FINISH SHALL BE IN ACCORDANCE WITH MIL-C-22443 EXCEPT ZINC CHROMATE PRIMER PER MIL-M-8585 SHALL BE FOLLOWED BY 2 COATS OF ENAMEL PER NASA DRAWING 101514.
- B. MATERIAL:

- (1) WEDGING: IN ACCORDANCE WITH MIL-M-530, TYPE I, CLASS 7, .051 THICK.
- (2) PLATE: ALUMINUM ALLOY 6061-T6 PER QQ-A-20250/11 .125 THICK.



FOR INFORMATION ONLY
CLASS B RELEASE TDRR NO. 07035 DATE

PROCURE ONLY FROM APPROVED SOURCES LISTED IN
HD 1002034 FOR THIS DRAWING.

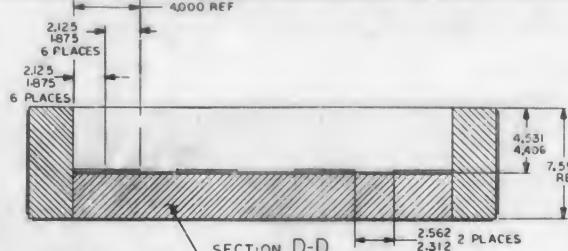
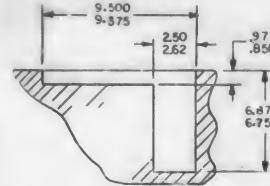
INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-G-8757

SHEET 1	SHEET 2
REVISION STATUS OF SHEETS	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES	DECIMALS	ANGLES
FRACTIONS	\pm	\pm
	.062	
DO NOT SCALE THIS DRAWING		
MATERIAL:		
SEE NOTES		
NEXT ASSY	USED ON	APPLICATION

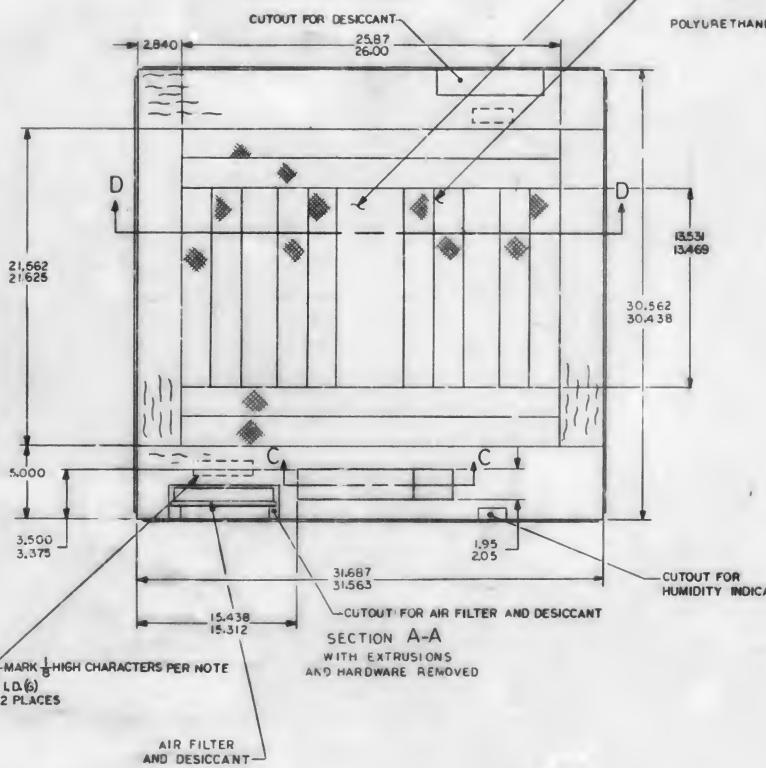
REVISIONS	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	ITEM NO
LIST OF MATERIALS			
MANNED SPACECRAFT CENTER			
HOUSTON, TEXAS			
CONTAINER, SHIPPING AND STORAGE -			
APOLLO GUIDANCE COMPUTER			
SPECIFICATION CONTROL DRAWING			
NASA DRAWING NO 1006230			
REVISIONS	ITEM NO	SIZE	WT
1	1	1	1

REVISIONS		DATE	APPROVED
DESCRIPTION			
RELEASE PER YDAR	Q-636		



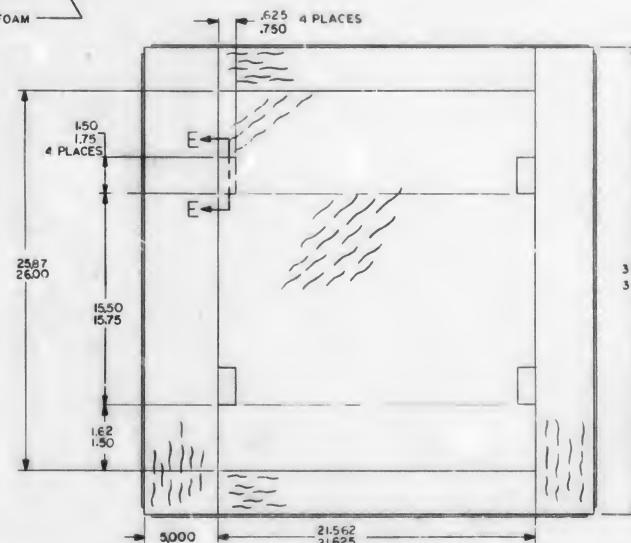
SECTION C-C

SECTION D-D

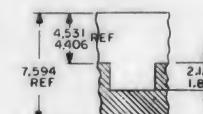


SECTION A-A
WITH EXTRUSIONS
AND HARDWARE REMOVED

AIR FILTER
AND DESICCANT-



FOR INFORMATION ONLY
CLASS B RELEASE TDRR NO. 07666 DATE



SECTION E-E
4 PLACES
ROTATED 90° CW

INTERPRET DRAWINGS IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-7058

NOTICE WHICH DETERMINES WHETHER SPECIFICATIONS OR DRAWINGS ARE
APPLICABLE TO THE CONTRACT. THIS NOTICE IS MADE BY A DIFFERENT
DEPARTMENT OF GOVERNMENT THAN THE CONTRACTING OFFICE WHICH ISSUED
THE CONTRACT. NOTWITHSTANDING THE APPROPRIATE NOTICE, THE CONTRACT
SHALL BE CONSTRUED IN ACCORDANCE WITH THE DRAWINGS AND
SPECIFICATIONS WHICH WERE APPROVED BY THE CONTRACTING
OFFICE. THE CONTRACTOR SHALL NOT BE HELD RESPONSIBLE FOR ANY
DRAWINGS OR SPECIFICATIONS WHICH ARE NOT APPROVED BY THE
CONTRACTING OFFICE. THE CONTRACTOR SHALL NOT BE HELD
RESPONSIBLE FOR ANY DEFECTS WHICH ARE NOT RELATED TO THE
DRAWINGS OR SPECIFICATIONS WHICH WERE APPROVED BY THE CONTRACTING
OFFICE.

REQUIREMENTS:

1. GENERAL:

 - A. UNITS SHALL MEET THE REQUIREMENTS OF MIL-C-22443 (WEP) TYPE I, CLASS 1, STYLE F WITH THE ADDITIONS AND EXCEPTIONS SPECIFIED HEREIN. SUBMITTAL OF PRODUCTION SAMPLE SHALL NOT BE REQUIRED.
 - B. THE SUPPLIER SHALL CONFORM TO THE QUALITY ASSURANCE PROVISIONS AS CONTAINED IN ND 1015404 CLASS 3.
 - C. UNITS SHALL BE DESIGNED TO MEET THE APOLLO ENVIRONMENTAL CRITERIA SPECIFICATION DATED MARCH 25, 1967 OF THE NATIONAL AERONAUTICS AND SPACE ADMINISTRATION MANNED SPACECRAFT CENTER, HOUSTON, TEXAS, PARAGRAPHS 3.2.1 THROUGH 3.2.1-16 WITH THE FOLLOWING EXCEPTIONS:
 - (1) PARAGRAPH 3.2.1-B.2 DUST SIZE SHALL BE 0.0004 INCH MAXIMUM.
 - (2) DELETE PART (b) OF PARAGRAPH 3.2.1-B.2, THAT IS "SIZE DISTRIBUTION - AT LEAST 95% ARE BETWEEN 0.00000 AND 0.00000 INCH IN SIZE".
 - D. MARKING: UNITS SHALL BE MARKED IN ACCORDANCE WITH ND 1002109 AND AS SPECIFIED HEREIN. UNLESS OTHERWISE SPECIFIED MARKING SHALL BE SILK-SCREENED USING RED COLOR IN ACCORDANCE WITH FEDERAL STANDARD 595 COLOR NUMBER 21105.
 - (1) MARK IN LOCATION INDICATED ON DRAWING "DEBEGICATED - DO NOT OPEN UNTIL READY FOR USE OR INSPECTION".
 - (2) MARK ON TOP PANEL OF COVER POSITIONING - DELICATE ELECTRONIC ASSEMBLY - THIS SIDE UP".

- (3) MARK IN LOCATION INDICATED ON DRAWING "EJECTION - SECURE ALL LATCHES BEFORE LIFTING". THE WORD CAUTION SHALL BE PRINTED IN 1/4 INCH HIGH CHARACTERS AND THE REMAINING WORDS SHALL BE PRINTED IN 3/16 HIGH CHARACTERS.

(4) EACH CONTAINER SHALL HAVE AN IDENTIFICATION PLATE IN ACCORDANCE WITH NASA DRAWING 10200N IN THE LOCATION INDICATED HEREIN. THE NAME AND PART NUMBER SHALL BE THE SAME AS THE TITLE, DRAWING NUMBER AND REVISION LETTER HEREON.

(5) THE BOTTOM CUSHION IN THE CONTAINER SHALL BE PROVIDED WITH TWO PERMANENTLY ATTACHED METAL PLATES, EQUIVALENT IN LOCATIONS INDICATED ON DRAWING SPECIFYING THE DESCIMATIC REQUIREMENT.

(6) MARK IN LOCATION INDICATED ON DRAWING "INSPECT EQUIPMENT AND REPLACE DESCIMATIC IF INDICATOR IS PINHOLE".

(7) MARK DIRECTLY UNDER EACH TIE DOWN AND LIFT RING "SLING LIFT HERE".

(8) MARK IN LOCATION INDICATED ON DRAWING "TWO-WAY AUTOMATIC RELIEF VALVE. DEPRESSURE CORE BEFORE OPENING CONTAINER.

2. ACCEPTANCE AND INSPECTION: ((1 PERCENT))
A. A CERTIFICATE OF COMPLIANCE WITH ALL THE REQUIREMENTS SPECIFIED HEREIN SHALL ACCOMPANY EACH SHIPMENT.

B. UNITS SHALL BE PROVIDED WITH A HUMIDITY INDICATOR IN ACCORDANCE WITH MIL-I-26060.

C. UNITS SHALL BE PROVIDED WITH A DESCIMATIC HOLDER AND DUST SHIELD LOCATED BEHIND PRESSURE RELIEF VALVE.

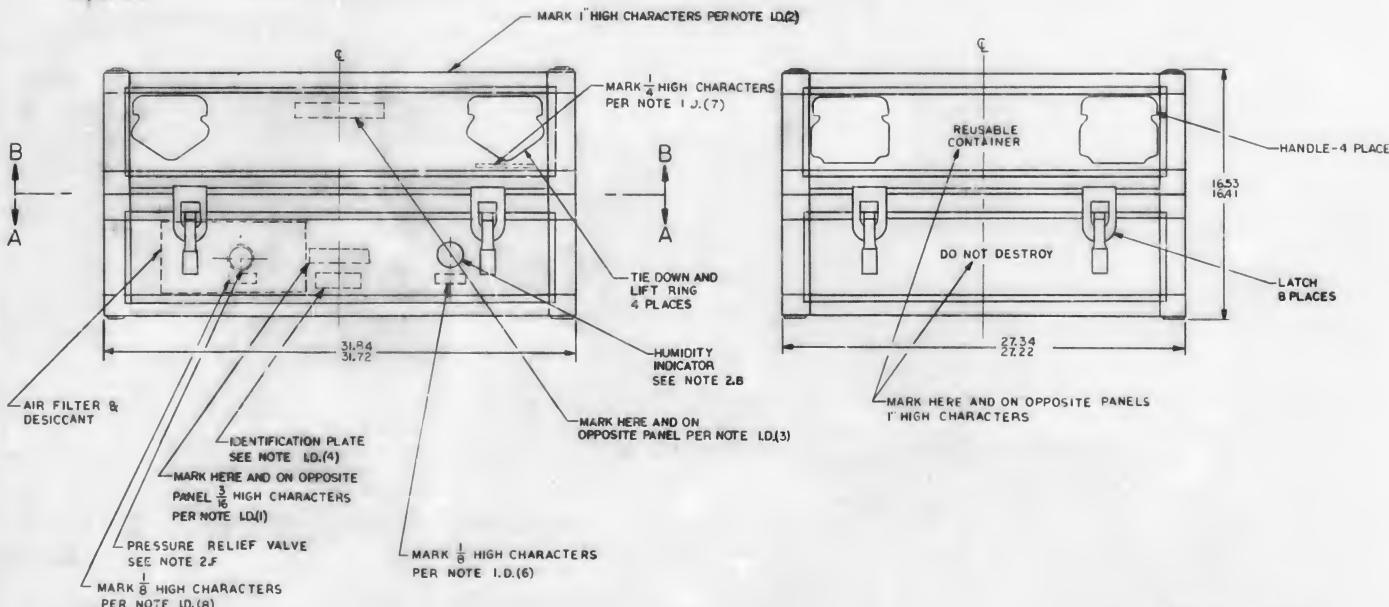
D. SECURITY SEAL: PROVISION SHALL BE MADE SO THAT LATCHES CAN BE SECURED WITH A MULTI-STRAND WIRE-LEAD SEAL.

E. UNITS SHALL BE PROVIDED WITH POLYURETHANE FOAM CUSHIONS BONDED TO THE INTERIOR SURFACES IN THE CONFIGURATION INDICATED ON DRAWING. DENSITY POLYURETHANE FOAM SHALL BE 1-1/2 POUNDS PER CUBIC FOOT.

F. UNITS SHALL BE PROVIDED WITH AN AUTOMATIC PRESSURE RELIEF VALVE TO RELIEVE PRESSURE DIFFERENTIALS IN EXCESS OF 0.5 PSI.

- 3 DESIGN:

A. FINISH: FINISH SHALL BE IN ACCORDANCE WITH MIL-C-22443 EXCEPT ZINC CHROMATE PRIMER PER MIL-P-8985 SHALL BE FOLLOWED BY 2 COATS OF ENAMEL PER NASA DRAWING 101A194.



PROCURE ONLY FROM APPROVED SOURCES LISTED IN
ND 1002034 FOR THIS DRAWING.

INTERPRET DRAWINGS IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-STD-103E

SHEET 1 SHEET 2
REVISION STATUS OF SHEET

QTY REQD	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	
B-57000-1 RAYTHEON CO. LEXINGTON, MASS. CONTRACT NO. 5-438 DRAWN BY <i>[Signature]</i> APPROVED BY <i>[Signature]</i> CHECKED BY <i>[Signature]</i> APPROVAL BY <i>[Signature]</i> APPROVAL BY <i>[Signature]</i> APPROVAL BY <i>[Signature]</i> APPROVAL BY <i>[Signature]</i>		LIST OF MATERIALS	
		MANAGED SPACECRAFT CENTER HOUSTON, TEXAS	
<p style="text-align: center;">CONTAINER, SHIPPING AND STORAGE - APOLLO NAVIGATIONAL DISPLAY</p> <p style="text-align: center;">SPECIFICATION CONTROL DRAWING</p>			
CODE: EIGHT NO. B12		NASA DRAWING NO.	
D		1006231	
SCALE: NONE		JACKET 1 OF 2	

NOTES - THIS INFORMATION CONTAINED, WHETHER OR NOT PATENTED, IS THE PROPERTY OF THE GOVERNMENT AND IS SUPPLIED PURSUANT TO A GOVERNMENT CONTRACT. IT IS TO BE USED EXCLUSIVELY BY GOVERNMENT CONTRACTOR AND ITS ASSIGNEES FOR THE PURPOSES OF THIS CONTRACT AND IS NOT TO BE RELEASABLE BY CONTRACTOR OR ASSIGNEE TO ANY OTHER PERSON UNLESS APPROVED IN WRITING BY THE GOVERNMENT. THIS DRAWING IS NOT TO BE COPIED OR REPRODUCED EXCEPT AS AUTHORIZED BY THE GOVERNMENT.

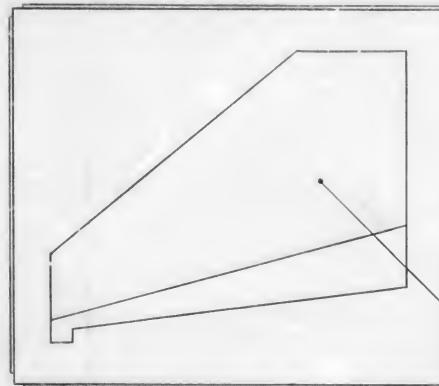
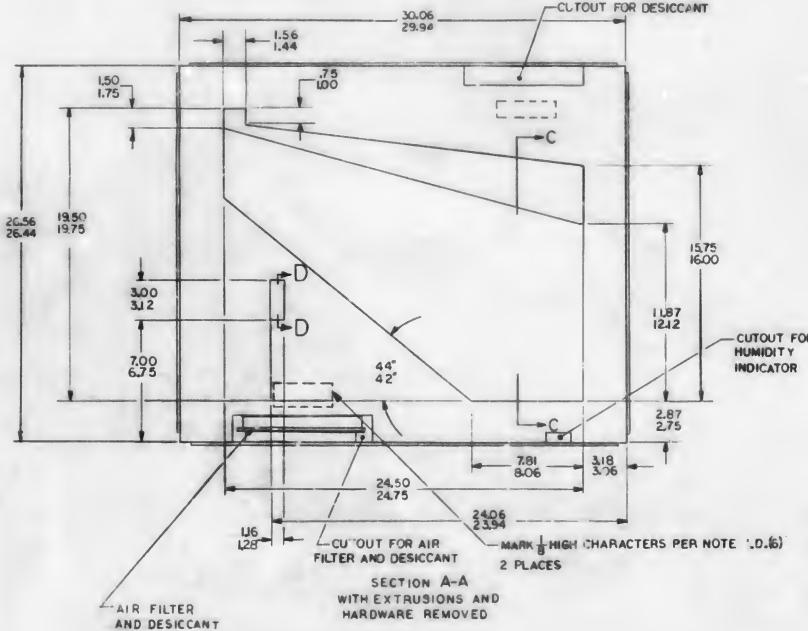
REVISIONS		
REV	DESCRIPTION	DATE APPROVED
-	CLASS B RELEASE PER TDRR 07636	



SECTION C-C
ROTATED 90° CCW



SECTION D-D
ROTATED 90° CCW



SECTION B-B
WITH EXTRUSIONS AND
HARDWARE REMOVED

FOR INFORMATION ONLY

CLASS B RELEASE TDRR NO.07636 DATE 4/14/64

QTY REQD	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO
LIST OF MATERIALS			
MANNED SPACECRAFT CENTER HOUSTON, TEXAS			
RAYTHEON CO LEXINGTON, MASS. CONTRACT NO. NAS-2-358			
DRAWN BY [Signature] CHECKED BY [Signature] APPROVAL BY [Signature] APPROVAL BY [Signature] APPROVAL BY [Signature]			
DO NOT SCALE THIS DRAWING MATERIAL			
SEE NOTES			
NEXT PGSY USED ON APPLICATION			
NASA APPROVAL [Signature] NOT APPROVAL [Signature] REF APPROVAL [Signature]			
COID IDENT NO SIZE D HALA DRAWING NO 1006231			
SCALE NO. WT SHEET 2 OF 2			

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REQUIREMENTS:

D

- A. SUPPLIER SHALL CONFORM TO THE QUALITY ASSURANCE PROVISIONS CONTAINED IN ND 1015404, CLASS 3.
 - B. MARKING: PARTS SHALL BE PERMANENTLY AND LEGIBLY MARKED, IN ACCORDANCE WITH ND 1002019, WITH THE NASA PART NUMBER (DRAWING NUMBER, DASH-NUMBER, AND REVISION). UNIT PACKAGES AND SHIPPING CONTAINERS SHALL BE MARKED EXTERNALLY AND INTERNALLY, IN ACCORDANCE WITH MIL-STD-129, WITH THE MANUFACTURER'S NAME, PART NUMBER, LOT CODE OR NUMBER, AND NASA PART NUMBER.

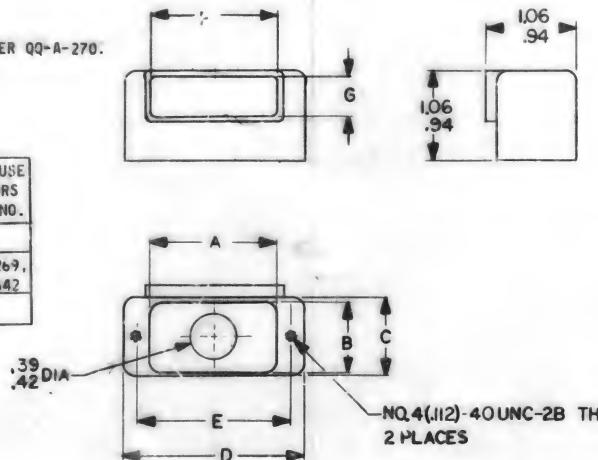
2. ACCEPTANCE AND INSPECTION:

- A. DIMENSIONS: AS SHOWN HEREIN.
 - B. CERTIFICATION: COMPLIANCE WITH THE MATERIAL AND FINISH DESIGN REQUIREMENTS SHALL BE CERTIFIED WITH EACH SHIPMENT.
 - C. PARTS INCLUDED: EACH POTTING SHELL SHALL BE SUPPLIED TOGETHER WITH A PIECE OF ROUND TETRAFLUOROETHYLENE (TFE) TUBING AS LOOSE PIECES. THE NOMINAL TUBING DIMENSIONS SHALL BE .28 ID X .38 OD X .81 LONG.

3. DESIGN:

- A. MATERIAL: ALUMINUM CASTINGS PER QQ-A-601 OR EXTRUSIONS PER QQ-A-270. TETRAFLUOROETHYLENE TUBING PER MIL-R-8791.
 - B. FINISH: CADMIUM PLATING WITH SUPPLEMENTARY OLIVE DRAB CHROMATE FILM PER QQ-P-416, CLASS 3, TYPE II.

DASH NO.	DIMENSION						DESIGNED FOR USE WITH CONNECTORS PER NASA DWG NO.	
	A $\pm .06$	B $\pm .005$	C $\pm .06$	D $\pm .005$	E $\pm .005$	F $\pm .06$		
-1	.2.03	.438	.53	2.780	2.460	2.03	.44	1006690
-2	3.38	.620	.72	4.128	3.808	3.36	.56	1006268, 1006269, 1010641, 1010642
-3	1.44	.796	.89	1.995	1.718	1.44	.44	1010411-1



FOR INFORMATION ONLY
CLASS B RELEASE TDRR NO 08541 DATE 5/19/64

PROCURE ONLY FROM APPROVED SOURCES LISTED IN
ND 1002034 FOR THIS DRAWING.

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
-	CLASS B RELEASE PER TDRR 05/91	8/19/01	44

QTY REQD	PART NR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND ID#
LIST OF MATERIALS			
RAYTHEON CO. LEXINGTON, MASS. CONTRACT NO. NAS 9-198		MANNED SPACECRAFT CENTER HOUSTON, TEXAS	
DRAWN	S.T. [initials]	DATE 25 FEB 67	
CHECKED	T. [initials]	RECORDED	
APPROVAL	S. [initials]		
APPROVAL	L. [initials]		
APPROVAL	K. [initials]		
SHELL, POTTING ELECTRICAL CONNECTOR, 90° SPECIFICATION CONTROL DRAWING			
CODE IDENT. NO.		SIZE	NASA DRAWING NO.
		C	1006232
SCALE	NONE	WT	SHEET
			OF
NASA APPROVAL C. [initials] 1/14 MIT APPROVAL C. [initials] 1/14 MIT APPROVAL L. [initials] 1/14			

NOTICE - THESE GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE FOR GOVERNMENT PURPOSES ONLY AND IN CONNECTION WITH THE DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION. THE UNITED STATES GOVERNMENT HAS THE RIGHT TO REPRODUCE THESE DRAWINGS, SPECIFICATIONS, OR OTHER DATA AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR TESTED THE DRAWINGS, SPECIFICATIONS, OR OTHER DATA DOES NOT IMPLY THAT IT IS NOT TO BE REGARDED AS IFIGINATED OR OTHERWISE AS IN ANY MANNER BY THE GOVERNMENT. THE GOVERNMENT'S OWNERSHIP OF THESE DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED AS A RESTRICTION ON THE GOVERNMENT'S RIGHT TO USE OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

NOTES:

1. GENERAL REQUIREMENTS:

- A. THESE RELAYS SHALL BE CAPABLE OF MEETING THE GENERAL REQUIREMENTS OF MIL-R-5757D IN ADDITION TO THE PARTICULAR REQUIREMENTS BELOW.
- B. THESE RELAYS SHALL BE MANUFACTURED TO MIL-Q-9858.
- C. MARKING: (1) UNITS SHALL BE PERMANENTLY AND LEGIBLY MARKED, PER ND 1002019, WITH THE VOLTAGE RATING. (2) INDIVIDUAL AND COLLECTIVE PACKAGING SHALL BE MARKED INTERNALLY AND EXTERNALLY PER ND 1002215 WITH THE MANUFACTURER'S NAME AND/OR SYMBOL, PART NUMBER, QUANTITY ENCLOSED, LOT CODE OR NUMBER, AND THE NASA PART NO. (DRAWING NUMBER, DASH NUMBER AND REVISION LETTER).

2. ACCEPTANCE AND INSPECTION REQUIREMENTS:

- A. DIMENSIONS: AS DELINEATED HEREIN.
- B. ELECTRICAL CHARACTERISTICS:
 - (1) PULL-IN VOLTAGE: MUST PULL IN AT 9 VDC MAXIMUM.
 - (2) INSULATION RESISTANCE: 100 MOEGOHMS MINIMUM BETWEEN ALL MUTUALLY INSULATED TERMINALS.
 - (3) DIELECTRIC WITHSTANDING VOLTAGE: 1500 VRMS MINIMUM BETWEEN ALL MUTUALLY INSULATED TERMINALS.
- C. MATERIAL CERTIFICATION: COMPLIANCE WITH MATERIAL REQUIREMENTS SHALL BE CERTIFIED WITH EACH SHIPMENT.

3. DESIGN REQUIREMENTS:

- A. OPERATING LIFE: (1) ONE MILLION OPERATIONS MINIMUM AT +25°C NO LOAD. (2) ONE HUNDRED THOUSAND OPERATIONS AT -25°C WITH RATED CONTACT LOADS.

B. CONSTRUCTION:

- (1) TYPE OF ENCLOSURE: NONE - OPEN CONSTRUCTION
- (2) MATERIALS: CONTACTS, SILVER; INSULATING MATERIAL, PHENOLIC LAMINATE; TERMINALS, SOLDER DIPPED BRASS; ALL OTHER MATERIALS SHALL BE CORROSION-RESISTANT METAL OR METAL SUITABLY PLATED TO RESIST CORROSION.
- (3) CONTACT FORM: DPDT

C. RATINGS:

- (1) CONTACTS: 8 AMPERES AT 115 VRMS 60 CPS RESISTIVE LOAD
2.6 AMPERES AT 115 VRMS 60 CPS INDUCTIVE LOAD.
- (2) COIL DISSIPATION: 1.6 WATTS NOMINAL, CONTINUOUS 6 WATTS MAXIMUM AT -45°C TO +25°C AMBIENT TEMPERATURE RANGE.
- (3) COIL VOLTAGE: 12 VDC NOMINAL.

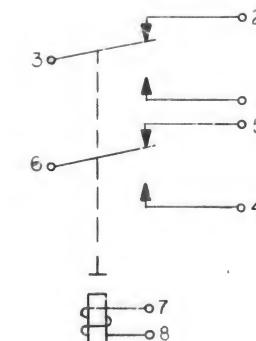
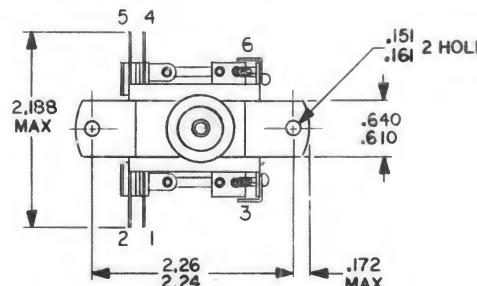
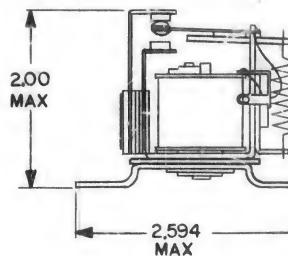


FIGURE 1
SCHEMATIC

PROCURE ONLY FROM APPROVED SOURCES LISTED IN ND 1002034 FOR THIS DRAWING.

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
-	CLASS B RELEASE PER TORR 07554	4/28/64	
A	UPGRADED TO CLASS A WITH CHANGE PER TDRR 15720 DR P. Chelios CHK SP-1 APPD H. Maynard	4/19/64	H. Maynard

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
LIST OF MATERIALS			
	RAYTHEON CO. LEXINGTON, MASS. CONTRACT NO. NAS 9-498	MANNED SPACECRAFT CENTER HOUSTON, TEXAS	
	DRAWN S.T. 01/14/64 DATE 04/28/64 CHECKED J. W. Maynard 4/28/64 APPROVAL H. Maynard 4/28/64 APPROVAL J. P. Chelios 4/28/64 APPROVAL J. P. Chelios 4/28/64		
	HEAT TREATMENT	NASA APPROVAL E.C. McLean 4/28/64 MIT APPROVAL S. Nagle 4/28/64	
	FINAL FINISH	MIT APPROVAL S. Nagle 4/28/64	
	SEE NOTE	CODE IDENT NO C SIZE C NASA DRAWING NO 1006234	
	APPLICATION	SCALE NONE WT	
	NEXT ASSY USED ON	SHEET 1 OF 1	
	FINAL FINISH		
	SEE NOTE		

RELAY, ARMATURE,
POWER, DPDT
SPECIFICATION CONTROL DRAWING

1006234

NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED CONTRACT, THE GOVERNMENT IS NOT RESPONSIBLE FOR ANY DAMAGE THEREBY INCURRED NOR ANY RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; NOR IS THE GOVERNMENT RESPONSIBLE FOR ANY LOSS OR DAMAGE WHICH MAY BE INCURRED BY THE CONTRACTOR OR OTHER PERSON IN CONNEC-TION WITH THE USE IN ANY WAY SUPPLIED THE SAME DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR. THE GOVERNMENT IS NOT LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

D REQUIREMENTS:

1. GENERAL:
 - A. SUPPLIER SHALL CONFORM TO THE QUALITY ASSURANCE PROVISIONS CONTAINED IN ND 1015404, CLASS 3.
 - B. PACKAGES SHALL BE LEGIBLY MARKED, PER ND 1002019 WITH THE MANUFACTURERS NAME AND/OR SYMBOL, AND NASA PART NUMBER (DRAWING NUMBER, DASH NUMBER, AND REVISION LETTER).

2. ACCEPTANCE AND INSPECTION:
 - A. MATERIAL CERTIFICATION: COMPLIANCE WITH MATERIAL REQUIREMENT SHALL BE CERTIFIED WITH EACH SHIPMENT.
 - B. MATERIAL: WHITE POLYVINYL CHLORIDE SHEET PER L-V-351 SANDWICHEDE BETWEEN TWO LAYERS OF POLYETHYLENE TERAPHthalATE (MYLAR) FILM PER MIL-I-631, TYPE G, FORM F, GRADE A, CLASS I AND BONDED WITH AN ACRYLIC ADHESIVE.
 - C. APPEARANCE: THERE SHALL BE NO ROUGH OR BURRED EDGES. THERE SHALL BE NO DELAMINATION OR BLISTERING ANYWHERE WHICH EXCEEDS 0.06 IN ANY DIMENSION.
 - D. SIZE: SEE TABULATION

- E. CONSTRUCTION: THE LAMINATED SHEET SHALL HAVE A PRESSURE SENSITIVE ADHESIVE APPLIED TO ONE SIDE WHICH SHALL HAVE A RELEASE PAPER PROTECTION.

3. DESIGN:
 - A. STORAGE LIFE: 1 YEAR MINIMUM AT ROOM TEMPERATURE AND HUMIDITY WITHOUT THE ADHESIVE DRYING OUT
 - B. AMBIENT TEMPERATURE RANGE: -40°F TO +140°F.

A PROCURE ONLY FROM APPROVED SOURCES LISTED IN ND 1002034 FOR THIS DRAWING.

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
-	CLASS B RELEASE PER TD RR 07553	4/7/67	JK

DASH NO.	W X L X T [*] (INCHES)
-1	18 ± 1/16 X 19 ± 1/16 X .015 ± .002
-2	19 ± 1/16 X 19 ± 1/16 X .015 ± .002

* T = THICKNESS OF BASE MATERIAL

FOR INFORMATION ONLY
CLASS B RELEASE TD RR NO. 07553 DATE 4/7/67

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
LIST OF MATERIALS			
	RAYTHEON CO. LEXINGTON, MASS.	MANNED SPACECRAFT CENTER HOUSTON, TEXAS	
	CONTRACT NO. NAS 9-490		
	DRAWN BY [Signature] DATE 4/7/67		
	CHECKED BY [Signature] DATE 4/7/67		
	APPROVAL BY [Signature] DATE 4/7/67		
	APPROVAL BY [Signature] DATE 4/7/67		
	APPROVAL BY [Signature] DATE 4/7/67		
	SEE NOTES	PLASTIC SHEET, LAMINATED, PRESS. SENSITIVE, ADH. BACKED	
	HEAT TREATMENT	SPECIFICATION CONTROL DRAWING	
	NEXT ASSY	USED ON	CODE IDENT NO. SIZE
			NASA DRAWING NO
			C 1006237
			SCALE NONE WT
			SHEET 1 OF 1
	APPLICATION	FINAL FINISH	

1006237

REVISIONS	
SYM	DESCRIPTION
-	CLASS B RELEASE PER TDRR 11460

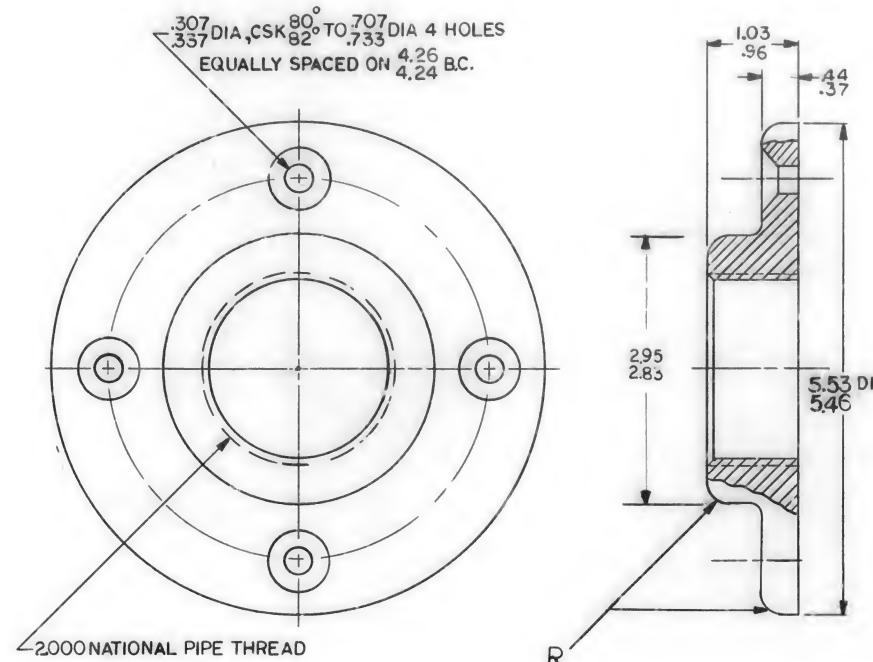
NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DIRECTLY RELATED CONTRACT, THE CONTRACTOR OR CONTRACTOR'S SUBCONTRACTOR, AND GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY LIABILITY WHATSOEVER; AND THE GOVERNMENT HEREBY DISCLAIMS ANY LIABILITY FOR ANY DAMAGE OR LOSS IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REPRODUCED, COPIED, OR REVEALED, IN WHOLE OR IN PART, WITHOUT THE LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS THEREIN, TO THE MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE REVEALED THERETO.

D REQUIREMENTS:

1. GENERAL:
 - A. SUPPLIER SHALL CONFORM TO THE QUALITY ASSURANCE PROVISIONS AS CONTAINED IN ND 1015404 CLASS 3.
 - B. MARKING: UNIT PACKAGES AND SHIPPING CONTAINERS SHALL BE MARKED INTERNALLY AND EXTERNALLY PER MIL-STD-129 WITH THE MANUFACTURER'S NAME, NASA DRAWING NUMBER AND REVISION LETTER, LOT OR SERIAL NUMBER AND DATE OF MANUFACTURE.
2. ACCEPTANCE AND INSPECTION:
 - A. DIMENSIONS: AS SPECIFIED HEREIN.
 - B. A CERTIFICATE OF COMPLIANCE WITH THE MATERIAL AND FINISH REQUIREMENTS SHALL ACCOMPANY EACH SHIPMENT.

C DESIGN:

- A. MATERIAL AND FINISH: MALLEABLE IRON WITH A HOT ZINC DIP FINISH (GALVANIZED) PER FEDERAL SPECIFICATION QQ-I-666C.



FOR INFORMATION ONLY
CLASS B RELEASE TDRR NO. 11460 DATE 8/12/64

1006243

PROCURE ONLY FROM APPROVED SOURCES LISTED IN
ND 1002034 FOR THIS DRAWING.

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON FRACTIONS DECIMALS ANGLES \pm \pm \pm			RAYTHEON CO. LEXINGTON, MASS. CONTRACT NO. NAS 9-498		MANNED SPACECRAFT CENTER HOUSTON, TEXAS	
		DO NOT SCALE THIS DRAWING MATERIAL SEE NOTE			DRAWN BY [Signature] CHECKED BY [Signature] APPROVAL [Signature] APPROVAL [Signature] APPROVAL [Signature]		FLOOR FLANGE, ROUND	
NEXT ASSY	USED ON	HEAT TREATMENT			NASA APPROVAL [Signature]		SPECIFICATION CONTROL DRAWING	
APPLICATION		FINAL FINISH			MIT APPROVAL [Signature]	CODE IDENT NO. C	SIZE	NASA DRAWING NO. 1006243
		SEE NOTE			MIT APPROVAL [Signature]	SCALE NONE	WT	SHEET 1 OF 1
5	4	SEE NOTE			MIT APPROVAL [Signature]	SCALE NONE	WT	SHEET 1 OF 1
3					MIT APPROVAL [Signature]	SCALE NONE	WT	SHEET 1 OF 1
2					MIT APPROVAL [Signature]	SCALE NONE	WT	SHEET 1 OF 1
1					MIT APPROVAL [Signature]	SCALE NONE	WT	SHEET 1 OF 1

REVISIONS

SYM	DESCRIPTION	DATE	APPROVED
-	CLASS B RELEASE PER TDRR 11297		
A	UPGRADE TO CLASS A WITH CHANGE PER TDRR 17511 DR. D. Marcy CHK w/figs 4-865 APPD A. Marcy	4/1965	1522

NOTICE - THESE GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT AND THE CONTRACTOR HEREBY DISCLAIM ANY LIABILITY FOR ANY DAMAGES AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR MADE AVAILABLE THE INFORMATION, DRAWINGS, SPECIFICATIONS, OR OTHER DATA, NOT TO BE REASONED OR INFERRED AS IMPLIES ANY WARRANTY, GUARANTEE, OR ASSURANCE OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, OR ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY RELATED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REQUIREMENTS:

1. GENERAL:

- A. SUPPLIER SHALL CONFORM TO MIL-Q-9858.

B. MARKING:

- (1) UNIT (IDENTIFICATION): MANUFACTURER'S NAMEPLATE CONTAINING THE MANUFACTURER'S NAME, ADDRESS, PART NUMBER, AND NASA PART NUMBER (DRAWING NUMBER AND REVISION LETTER) SHALL APPEAR ON THE REAR OF THE UNIT (NOT ON THE FRONT PANEL).
- (2) UNIT (FRONT PANEL): UNIT NAME "DIGITAL OHMMETER" AND FUNCTIONAL MARKING "SIGNAL HI", SIGNAL LO, ON, OFF, STANDBY, AND PRINT" SHALL BE SILK SCREENED BLACK CHARACTERS PER ND 1002019. SIZE SHALL BE AS DELINEATED HEREIN, OTHERWISE AS APPROPRIATE.
- (3) PACKAGES: UNIT PACKAGES AND SHIPPING CONTAINERS SHALL BE MARKED INTERNALLY AND EXTERNALLY, IN ACCORDANCE WITH MIL-STD-129, WITH THE MANUFACTURER'S NAME, PART NUMBER, AND THE NASA PART NUMBER.

2. ACCEPTANCE AND INSPECTION:

A. MECHANICAL:

- (1) DIMENSIONS: AS DELINEATED HEREIN.

B. ELECTRICAL:

- (1) VISUAL READOUT: ALL CHARACTERS (4 DIGITS PLUS THE LETTER "K" PLUS A FIXED DECIMAL) SHALL LIGHT AS APPROPRIATE WHEN A RESISTOR OF LESS THAN 10K IS TESTED. THE FIXED DECIMAL POINT SHALL BE LOCATED BETWEEN THE FIRST AND SECOND CHARACTERS READING FROM LEFT TO RIGHT.
- (2) ACCURACY OF MEASUREMENT: $\pm (0.01\% \text{ OF READING} + 1 \text{ DIGIT})$ OVER THE ENTIRE RANGE.
- (3) RANGE OF MEASUREMENT: FROM 0.001K TO 9.999K OHMS.
- (4) STABILITY: METER SHALL WARM UP WITHIN 10 MINUTES OF TURN-ON AND SHALL BALANCE FOR A GIVEN READING WITHIN 2.5 SECONDS.
- (5) VOLTAGE ACROSS RESISTOR UNDER TEST: 3.30 VDC MAXIMUM, 3.00 VDC MINIMUM FOR 5000 OHMS FROM ZERO VDC AT ZERO OHMS TO 6.30 VDC MAXIMUM AT 10,000 OHMS.

3. DESIGN:

A. ELECTRICAL CHARACTERISTICS:

(1) CONTROL PULSES

PRINT COMMAND PULSE (OUTPUT): AN INTERNAL PULSE BETWEEN MINUS 6 AND MINUS 40 VDC HAVING A DURATION OF 20-50 MICROSECONDS. THE OUTPUT IMPEDANCE SHALL BE APPROXIMATELY 4000 OHMS.

READ COMMAND PULSE (INPUT): AN EXTERNAL PULSE BETWEEN MINUS 4.0 AND MINUS 8.0 VDC HAVING A DURATION OF 150-400 MICROSECONDS. SOURCE IMPEDANCE APPROXIMATELY 4000 OHMS.

PROCURE ONLY FROM APPROVED SOURCES

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

- (2) DATA OUTPUT: PARALLEL 1-2-4-8 BCD OUTPUT WITH A -6 TO -81 VDC "1" STATE AND A +0.3 TO -0.3 VDC "0" STATE.
- (3) POWER REQUIREMENTS: 45 WATTS STANDBY, 50 WATTS BALANCING AT 115 VOLTS RMS, $\pm 10\%$, 60 CPS.
- (4) SIGNAL INPUT (SIGNAL HI & SIGNAL LO): 2 INCH (UG1094A/U OR EQUIV) RECEPTACLES ON FRONT PANEL.
- (5) SWITCH: A ROTARY, POSITIVE DETENT TYPE SWITCH HAVING AT LEAST THE FUNCTIONS OF "OFF", STANDBY, ON, AND PRINT" SHALL BE LOCATED ON THE FRONT PANEL.
- B. ACCESSORIES:
- (1) UNIT SHALL BE SUPPLIED WITH TWO OPERATING AND MAINTENANCE MANUALS INCLUDING THE UNIT SCHEMATIC.
- (2) UNIT POWER CORD SHALL BE 5 FEET LONG APPROXIMATELY, TERMINATED AT THE UNIT END BY ANY SUITABLE 3 PRONG CONNECTOR AND THE OTHER END SHALL BE AN MS3106R-20-AP CONNECTOR WITH BUSHING AND ADAPTER.
- (3) UNIT SIGNAL OUTPUT SHALL BE THROUGH A 20-24 INCH CABLE WHICH PLUGS INTO THE REAR OF THE UNIT. THE UNIT END OF THE CABLE IS TERMINATED IN AN AMPHENOL 36 PIN PLUG (PART NUMBER 57-30360) WHICH MATES WITH AN AMPHENOL RECEPTACLE (PART NUMBER 57-40360). THE FREE END OF THE CABLE HAS AN AMPHENOL 50 PIN PLUG (PART NUMBER 57-30500) AND SHALL BE COMPATIBLE WITH THE INPUT CONNECTOR & CIRCUITRY OF RECORDER NASA DWG NO. 1005965.

- C. FRONT PANEL SCREWS SHALL BE MS35200 CROSS-RECESSED FLAT HEAD WHERE POSSIBLE, OTHERWISE MS35216 PAN HEAD SCREWS.
- D. FUNCTION SWITCH KNOB ON THE FRONT PANEL TO BE PER MS91528, BLACK MATTE FINISH.
- E. FINISH, PROTECTIVE: PANEL SHALL BE FINISHED BY PAINTING THE FRONT AND EDGES WITH ONE COAT OF SEMI-GLOSS ENAMEL (TT-E-529, CLASS B, COLOP 26440 OF FED-STD-595) PER MIL-F-14072 P513, TYPE I EXCEPT THE CHROMATE FILM SHALL BE ELECTRICALLY CONDUCTIVE.
- F. VISUAL READOUT: CHARACTERS SHALL BE ONE INCH HIGH GOTHIQUE OF STANDARD (NOT EXTENDED OR COMPRESSED) PROPORTION. THEY SHALL BE CAPABLE OF BEING READ UNDER BRIGHT ROOM CONDITIONS (100 FOOT-CANDLE OVERHEAD ILLUMINATION) FROM 30 DEGREES OFF THE NORMAL IN ANY DIRECTION.
4. PREPARATION FOR DELIVERY PER ND1002215

ORIGINAL SOURCE OF SUPPLY:

NON-LINEAR SYSTEMS, INC.
BOX 278
DEL-MAR, CALIFORNIA
MODEL 784 REV A

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION		FIND NO
LIST OF MATERIALS				
	RAYTHEON CO. LEXINGTON, MASS.	MANNED SPACECRAFT CENTER HOUSTON, TEXAS		
	CONTRACT NO. NAS 9-498	OHMMETER, DIGITAL		
	DRAWN S. T. On 10/22/64 CHECKED 10/22/64 APPROVAL D. Marcy 10/22/64 APPROVAL L. W. Marcy 10/22/64 APPROVAL H. J. Marcy 10/22/64	SPECIFICATION CONTROL DRAWING		
NEXT ASSY	USED ON	HEAT TREATMENT	NASA APPROVAL 10/22/64 MIT APPROVAL 10/22/64	CODE IDENT NO. C NASA DRAWING NO. 1006244 SCALE NONE WT
APPLICATION		FINAL FINISH	MIT APPROVAL 10/22/64	SHEET 1 OF 2
SEE NOTE				

1006244

A

D

C

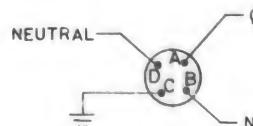
B

A

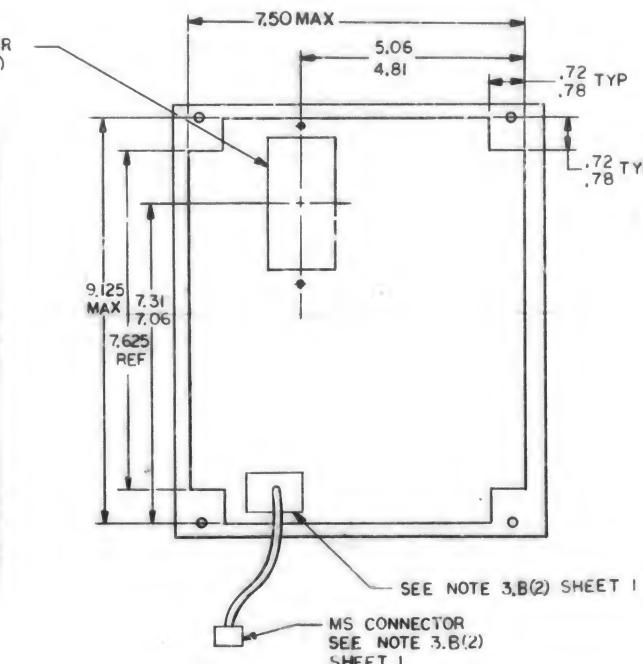
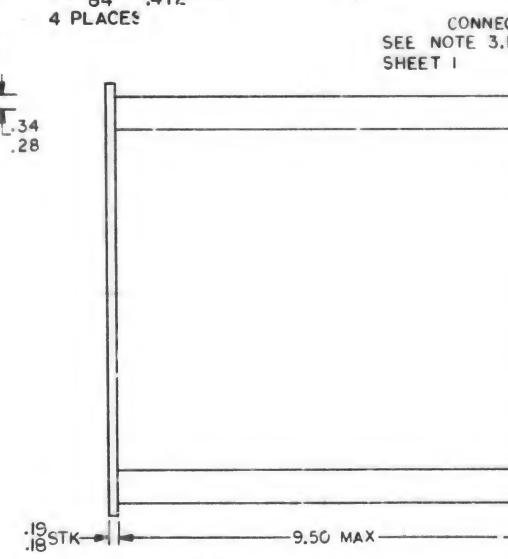
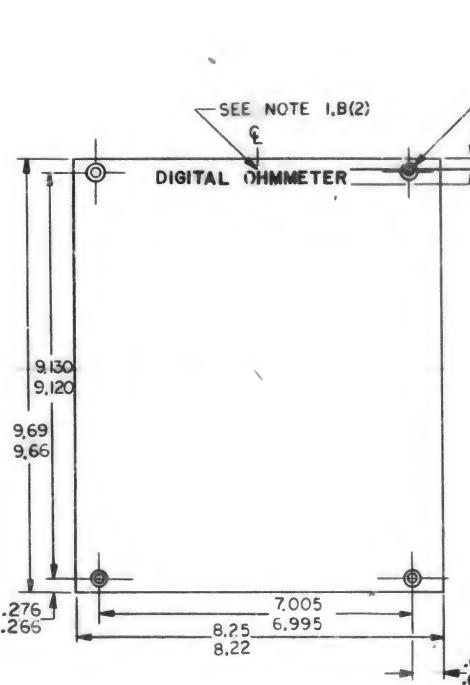
1

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REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
-	CLASS B RELEASE PER TDPR ^o 11297		
A	UPGRADE TO CLASS B WITH CHANGE PER TDPR 17511 DR <i>Strong</i> CHRU. 1998-08-25 APPD # <i>Reynard</i>	4/6/01	HCDS



AC CORD PLUG
WIRING DIAGRAM
FIGURE 1



1006244

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO	
LIST OF MATERIALS				
RAYTHEON CO. LEXINGTON, MASS. CONTRACT NO HAS 9-498		MANNED SPACECRAFT CENTER HOUSTON TEXAS		
DRAWN <u>26 Jul 69</u> STKITE 22 JUN 69 <u>1819</u> CHECKED <u>ZD</u> <u>Aug 69</u> <u>1819</u> APPROVAL <u>L</u> <u>Aug 69</u> <u>1819</u> APPROVAL <u>R</u> <u>Aug 69</u> <u>1819</u> APPROVAL <u>7/19 69</u> <u>7/27 69</u>		OHMMETER, DIGITAL SPECIFICATION CONTROL DRAWING		
NASA APPROVAL <u>1819</u> MIT APPROVAL <u>W</u> <u>Aug 69</u> MIT APPROVAL <u>R</u> <u>Aug 69</u>		CODE IDENT NO <hr/>	SIZE <div style="text-align: center;">C</div>	NASA DRAWING NO <div style="text-align: center;">1006244</div>
		SCALE NONE	WT	SHEET 2 of 2

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ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH THE DEFENSE
RELATED GOVERNMENT PROCUREMENT OPERATIONS OF THE UNITED STATES
GOVERNMENT, THE GOVERNMENT'S CONTRACTORS, OR THE GOVERNMENT
AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR
IN ANY WAY PREPARED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS
NOT TO BE RECORDED BY THE RECIPIENT AS A TRADE SECRET. NO LICENSE
OR OTHER RIGHT, NOR ANY OTHER PERSON OR CORPORATION OR COPYING
AND RIGHTS IN PERMISSION TO MANUFACTURE, USE, OR SELL ANY
PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO

REQUIREMENTS:

1. GENERAL:

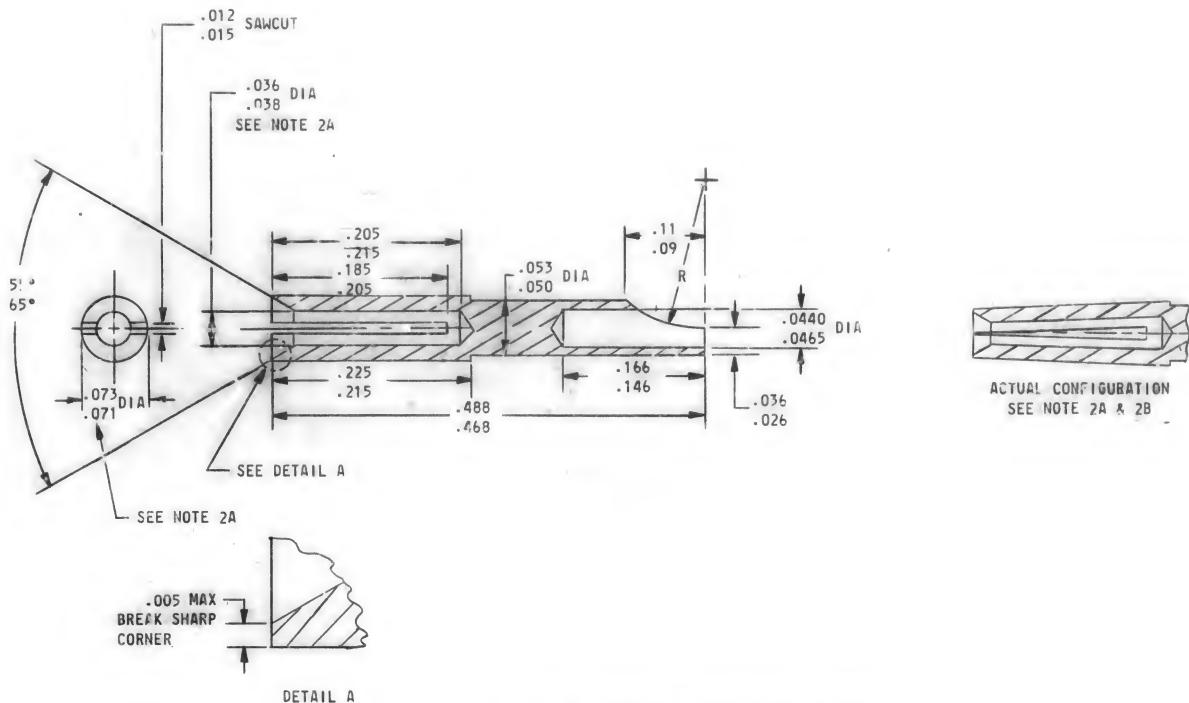
- A. SUPPLIER SHALL CONFORM TO THE QUALITY ASSURANCE PROVISIONS CONTAINED IN ND 1015404, CLASS 3.
 - B. MARKING: UNIT PACKAGES AND SHIPPING CONTAINERS SHALL BE MARKED INTERNALLY AND EXTERNALLY, IN ACCORDANCE WITH MIL-STD-129, WITH THE MANUFACTURER'S NAME, PART NUMBER, LOT NUMBER OR CODE, AND NASA PART NUMBER (DRAWING NUMBER, REVISION LETTER AND DASH NUMBER).

2. ACCEPTANCE AND INSPECTION:

- A. DIMENSIONS: AS DELINEATED HEREIN WHEN A SQUARE GAGE PIN OF .0262 ACROSS FLATS IS INSERTED INTO THE CRIMPED HOLE. A ROUND GAGE PIN OF .037 DIAMETER MA. BE USED AS AN EQUIVALENT.
 - B. PIN RETENTION: THESE CONTACTS SHALL BE CRIMPED AS SHOWN SO THAT A SQUARE PIN .023 ACROSS FLATS (.0335 DIA REF) SHALL BE RETAINED AND A PIN .027 ACROSS FLATS (.0382 DIA REF) SHALL NOT CAUSE PERMANENT DEFORMATION.
 - C. CERTIFICATION: A CERTIFICATE OF COMPLIANCE WITH THE MATERIAL AND FINISH REQUIREMENTS SHALL ACCOMPANY EACH SHIPMENT.

3. DESIGN:

- A. MATERIALS: PHOSPHOR BRONZE PER QQ-P-330, COMPOSITION A, SPRING TEMPER.
 - B. FINISH: 30 MILLIONTHS MINIMUM HARD GOLD PLATE PER MIL-G-45204, TYPE II OVER 200-300 MILLIONTHS OF SILVER PLATE PER QQ-S-365.
 - C. BURRS AND SHARP EDGES: REMOVE BURRS AND SHARP EDGES ALL OVER.



FOR INFORMATION ONLY

CLASS B RELEASE TDRR NO. 13151 DATE 9/30/64

PROCURE ONLY FROM APPROVED SOURCES LISTED IN ND 1002034
FOR THIS DRAWING.

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

		QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
LIST OF MATERIALS					
	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON FRACTIONS DECIMALS ANGLES ± ± ±	RAYTHEON CO. RAYTHEON LEXINGTON, MASS. CONTRACT NO. FND-12775		MANNED SPACECRAFT CENTER HOUSTON, TEXAS	
	DO NOT SCALE THIS DRAWING MATERIAL SEE NOTE	DRAWN BY J. L. Jones DATE 1 SEP 64 CHECKED 10/1/64 APPROVAL 18 SEP 64 APPROVAL A. G. Pickel 21 SEP 64 APPROVAL D. J. Bryant 21 SEP 64 APPROVAL M. J. B. 7-1-64		CONTACT, ELECTRICAL, FEMALE	
	HEAT TREATMENT SEE NOTE	NASA APPROVAL W. J. Hause 8-27-64 MIT APPROVAL W. C. Cooper 3/16/64		SPECIFICATION CONTROL DRAWING	
NEXT ASSY	USED ON			CODE IDENT NO. C	SIZE NASA DRAWING NO. 1006248
APPLICATION		MIT APPROVAL C. Spauli 9/16/64		SCALE NAME WT	SHEET 1 OF 1
SEE NOTE					
FINAL FINISH					

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
-	CLASS B RELEASE PER TDRR 13690	10/12/64	44

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REQUIREMENTS:

1. GENERAL:
 - A. SUPPLIER SHALL CONFORM TO THE QUALITY ASSURANCE PROVISIONS CONTAINED IN ND 1015404, CLASS 3.
 - B. MARKING: UNIT PACKAGES AND SHIPPING CONTAINERS SHALL BE MARKED INTERNALLY AND EXTERNALLY, IN ACCORDANCE WITH MIL-STD-129, WITH THE MANUFACTURER'S NAME, PART NUMBER, LOT CODE OR NUMBER, AND NASA PART NUMBER (DRAWING NUMBER, REVISION LETTER, AND DASH NUMBER).
2. ACCEPTANCE AND INSPECTION:
 - A. DIMENSIONS: AS DELINEATED
 - B. GEOMETRY: IN GENERAL, ALL FEATURES OF THE PART SHALL BE SYMMETRICAL AND FULLY FORMED. THE HOLDING RING, THE CLINCHING RING, AND THE ANTI-ROTADE SERPENTINE RING SHALL BE CONCENTRIC WITH THE TAPPED HOLE AND WITH EACH OTHER WITHIN 0.005 TIR. A PLANE PASSING THRU THE PERIPHERAL EDGE OF ANY OF THESE RINGS SHALL BE SQUARE WITH THE AXIAL CENTERLINE OF THE THREAD AND PARALLEL WITH SURFACE D WITHIN (1°) ONE DEGREE TIR.
 - C. CERTIFICATION: A CERTIFICATION OF COMPLIANCE WITH THE MINIMUM HARDNESS AND ELECTROPLATED FINISH DESIGN REQUIREMENTS SHALL ACCOMPANY EACH SHIPMENT.

TABLE I

DASH NO.	THREAD SIZE	DIMENSIONS						MINIMUM DISTANCE FROM HOLE TO EDGE OF SHEET	
		A MAX	FOR SHEET THICKNESS	C MAX	MOUNTING HOLE +.003-.000	E +.015 -.005	T ±.03		
-001 -002 -003	NO. 4 (.112)-40 UNC-2B	.038 .054 .087	.040-.055 .056-.090 .091-UP	.164	.166	.250	.38	.19	.19
-004 -005 -006	NO. 6 (.138)-32 UNC-2B	.038 .054 .087	.040-.055 .056-.090 .091-UP	.185	.188	.312	.38	.19	.22
-007 -008 -009	NO. 8 (.164)-32 UNC-2B	.038 .054 .087	.040-.055 .056-.090 .091-UP	.210	.213	.344	.44	.25	.26
-010 -011 -012	NO. 10 (.190)-24 UNC-2B	.038 .054 .087	.040-.055 .056-.090 .091-UP	.247	.250	.375	.44	.25	.28
-013 -014 -015	NO. 10 (.190)-32 UNF-2B	.038 .054 .087	.040-.055 .056-.090 .091-UP	.247	.250	.375	.44	.25	.28
-016 -017 -018	.250-20UNC-2B	.054 .087 .120	.056-.090 .091-.124 .125-UP	.342	.344	.500	.56	.31	.34

PROCURE ONLY FROM APPROVED SOURCES LISTED IN ND 1002034 FOR THIS DRAWING.

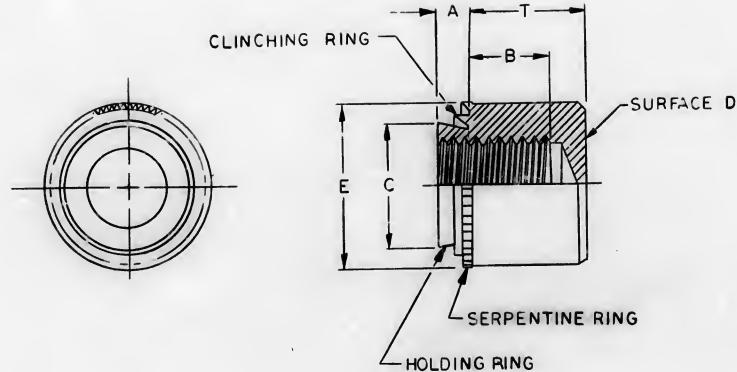
INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

3. DESIGN:

A. MATERIAL & HARDNESS: THE BASE MATERIAL SHALL BE A CARBON STEEL, HEAT TREATED OR OTHERWISE HARDENED (WORK OR CASE HARDENED) SO THAT THE PARTS MAY BE INSTALLED IN ALMOST ANY MATERIAL HAVING A HARDNESS EQUAL TO OR LESS THAN ROCKWELL B85. NOTE: MAGNESIUM IS SPECIFICALLY EXCLUDED AS A MOUNTING MATERIAL.

INSTALLATION SHALL MEAN APPLICATION OF A NORMAL STEADY PRESSURE TO SURFACE D, WITH THE HOLDING RING STARTED INTO A RECOMMENDED MOUNTING HOLE, SUFFICIENT TO FORCE THE SERPENTINE RING JUST BELOW THE MOUNTING SURFACE. PROPERLY INSTALLED, THE NUT SHALL WITHSTAND AN AXIAL PUSHOUT FORCE EQUAL TO 50% OF THE INSTALLING FORCE AND A TORQUE SUFFICIENT TO STRIP THE NUT THREADS WITHOUT PUSHING OR TURNING LOOSE IN THE MOUNTING SHEET.

B. FINISH: CADMIUM ELECTROPLATE PLUS A CHROMATE CONVERSION COATING PER QQ-P-416, TYPE II, CLASS 3.



FOR INFORMATION ONLY
CLASS B RELEASE TDRR NO. 13690 DATE

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
LIST OF MATERIALS			
<small>RAYTHEON CO. LEXINGTON, MASS CONTRACT NO. FNP-12725</small>		MANNED SPACECRAFT CENTER HOUSTON, TEXAS	
<small>DRAWN BY [Signature] CHECKED [Signature] APPROVAL [Signature] 10/12/64</small>		<small>NUT, PLAIN, SELF CLINCHING, CAP</small>	
<small>SEE NOTE</small>		<small>SPECIFICATION CONTROL DRAWING</small>	
<small>HEAT TREATMENT SEE NOTE</small>		<small>NASA APPROVAL [Signature] 10/12/64</small>	
<small>NEXT ASSY USED ON</small>		<small>MIT APPROVAL [Signature] 10/12/64</small>	
<small>APPLICATION</small>		<small>MIT APPROVAL [Signature] 10/12/64</small>	
<small>FINAL FINISH SEE NOTE</small>		<small>MIT APPROVAL [Signature] 10/12/64</small>	
		CODE IDENT NO. C	NASA DR-WING NO. 1006249
		SIZE C	WT.
		SCALE NONE	SHEET 1 OF 1

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT IS NOT RESPONSIBLE FOR THE USE OF SUCH DRAWINGS, SPECIFICATIONS, OR DATA AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE BALD DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE CONSTRUED AS GRANTING ANY RIGHTS TO THE HOLDER, OR AS GRANTING A LICENSE TO THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REQUIREMENTS:

1. GENERAL:

- A. SUPPLIER SHALL CONFORM TO THE QUALITY ASSURANCE PROVISIONS CONTAINED IN ND 1015404, CLASS 3.
 - B. PREPARATION FOR DELIVERY SHALL BE IN ACCORDANCE WITH ND 1002215, CLASS I.
 - (1) SHIPPING CONTAINERS SHALL BE MARKED IN ACCORDANCE WITH PARAGRAPHS 3.5.1 & 3.5.2 OF ND 1002215.

2. ACCEPTANCE AND INSPECTION:

- A. VENDOR SUPPLIED DATA: EACH SHIPMENT OF PARTS SHALL BE ACCOMPANIED BY THE FOLLOWING DOCUMENTATION.

 - (1) CERTIFICATE OF COMPLIANCE WITH ND 1015404, CLASS 3.
 - (2) CERTIFICATE OF COMPLIANCE WITH DESIGN REQUIREMENTS.

3. DESIGN:

- A. APPLIED LIFE: INDEFINITE WHEN APPLIED TO RIGID POLYVINYL CHLORIDE SHEET AND PROPERLY DRIED. THERE SHALL BE NO FADING, CRACKING, FLAKING OR SMEARING WHEN EXPOSED TO TEMPERATURES BELOW +120°F AND RELATIVE HUMIDITY BELOW 95%.
 - B. STORAGE LIFE: 3 YEARS MINIMUM WHEN STORED IN TIGHTLY CLOSED ORIGINAL CONTAINERS AT TEMPERATURES BELOW 80°F.

C PHYSICAL PROPERTIES:

- (1) SPECIFIC GRAV TY: 0.8580 AT 20°C.
 - (2) VISCOSITY: 15-20 CENTIPOISES AT 20°C USING A BROOKFIELD VISCOMETER AT 60 RPM WITH SPINDLE NO. 1.
 - (3) SOLIDS CONTENT: 20.5% NOMINAL
 - (4) RESINS: 7.7% NOMINAL
 - (5) COLORS: OPAQUE COLORS IN ACCORDANCE WITH TABLE I.
 - (6) DRYING TIME: 30 SECONDS MAXIMUM AT 75°F AND 50% RELATIVE HUMIDITY. ULTIMATE HARDNESS WILL BE ACHIEVED IN APPROXIMATELY 4 HOURS WHICH WILL ASSURE WATERPROOF QUALITIES.

TABLE

DASH NO.	COLOR
-001	BLACK
-002	BROWN
-003	RED
-004	ORANGE
-005	YELLOW
-006	GREEN
-007	BLUE
-008	PURPLE

PROCURE ONLY FROM APPROVED SOURCES LISTED IN
ND 1002034 FOR THIS DRAWING.

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

006256

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
-	CLASS B RELEASE PER TDRR 15088	140864	WK

PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIN NO		
LIST OF MATERIALS				
RAYTHEON CO. LEXINGTON, MASS. ACT NO. FNP-12775	MANNED SPACECRAFT CENTER HOUSTON, TEXAS			
D Drawing 12/14/64 ED R.T. Drawing 12/14/64 VAL D Drawing 12/14/64 VAL R.T. Drawing 12/14/64 VAL 791 Brev 12/14/64	INK, MARKING			
SPECIFICATION CONTROL DRAWING				
APPROVAL W. J. R. 12/28/64	CODE IDENT NO.	SIZE	NASA DRAWING NO	
PPROVAL W. J. R. 13/1/64	—	C	1006256	
PPROVAL C. S. 12/16/64	SCALE	NONE	WT	SHEET
				I OF I

ITEM NO.	DESCRIPTION	END ITEM	R. I. B. NO. (REF)	AUTHORIZATION ECP. NO. OR S.O.W.	P/N MOD. (REF)	RFK NO.	NEW P/N (REF)	S/N
1.0	ELIMINATE SHIFT OF SWITCHES AFTER ALIGNMENT	SEXTANT HAND CONTROLLER	1021245	MA-52	1014558-011	1021203	1014558-011	1, 2, 3
2.0	ADDITION OF SIGNAL CONDITIONER POWER SUPPLY			ECP-25		8102602		
2.1	POWER & SERVO ASSY		0102600		1007100	8102601	1007257-011	G&N 6
2.2	POWER & SERVO ASSY		0102600		1007207-011	8102600	1007257-031	G&N 20
2.3	POWER & SERVO ASSY		0102600	ECP-25	1007400-011	8102600	1007257-041	G&N 11, 12
3.0	MOISTURE-PROOFING G&N 20				1015500-011	8102613		G&N 20
3.1	COUPLING DISPLAY UNIT				1015500-011	8102608	1015500-021	39, 44, 45, 46, 47
3.2	DAC GROUP				1014513-011	8102604	1014513-021	S/N 6
3.3	OPTICAL UNIT ASSY				1011000-002	8102615	1011000-002 MOO 1	S/N 9
4.0	CHANGE TO TEFLON AND MILENE WIRE				1014603	ECI-63		
4.1	G&N HARNESS & END CONNECTOR				1014606-011	8102607	1014606-031	SPARE
4.2	G&N INDICATOR CONTROL PANEL ASSY				1014578-021	8102606	1014578-041	SPARE
4.3	IMU CONTROL PANEL ASSY				1014526-011	8102605	1014526-031	SPARE
5.0	CORRECT IDENTIFICATION OF NAV, BASE & OPTICS ASSY				0102609	ECP-130		
5.1	NAV, BASE & OPTICAL UNIT ASSY					8102622		
5.2							1899950-031	G&N 8
5.3							1899950-041	G&N 20
							1899950-051	G&N 11, 12
6.0	CHANGE FROM 40 TO 100 SECOND TIME DELAY				0102607	ECP-137	1015065-011	8102620
7.0	MOISTURE SEALING				0102620	ECP-267	1016903-031	8102637
8.0	BLOWER MOTOR RESISTOR				0102627	ECP-230	1001500-011	8102621
9.0	RETROFIT KIT FOR ECP 165	IMU CONTROL PANEL ASSY	0102613	ECP-165	1015095-011	8102627	1014628-011	12 SPARE
10.0	RETROFIT KIT FOR ECP 246	D&C ELECTRONICS ASSY	0102621	ECP-246	1015065-031	8102626	101505-051	11, 12, 10 THRU 124
11.0	ADD SOLID PIN IN CAM & KNOB	G&N INDICATOR CONTROL PANEL ASSY	0102615	ECP-240	1015048-011	8102629	1015048-031	12, SPARE 10 THRU 124, SPARE
12.0	G&N 11, 12, 10, RETROFITS	G&N SYSTEM	0102630	ECP-251		8102648		17
12.1		C DU FRAMES & PANEL ASSY	0102621	ECP-251	1016903-021	8102645	1016903-051	
12.2		POWER & SERVO ASSY	0102616	ECP-251, 84R	1007257-041	8102631	1007257-051	GEN 11, 12, 10, 11, 10 SPARE
13.0	REPLACE PANEL MOUNTING SCREWS	G&N SYS.	0102623	ECP-265		8102644		
13.1	GEN IND. JCN. PANEL	GEN IND. JCN. PANEL	0102625	ECP-165, 271	1015053-011	8102643	1015053-021	G&N 12 "50" SPARE
13.2	GEN IND. CON. PANEL		0102623	ECP-169, 265	1014644-011	8102638	1014644-021	110, 111, 112, 121 THRU 124, 100 SPARES GEN 12
13.3	IMU CONTROL PANEL		0102623	ECP-265	1014628-011	8102639	1014628-021	50SP 110, 111, 121 THRU 124, 100 SPARES GEN 12
13.4	OPTICS SHROUD		0102683	ECP-265	1014502-011	8102642	1014502-021	50SP 10, 11, 12, 112 THRU 124, 100 SPARES
13.5	D&C ELECTRONICS		0102623	ECP-265	1015065-051	8102640	1015065-081	G&N 12
					-051		-081	"50" SPARE
					-071		-101	G&N 110
14.0	ADD HORIZONTAL HANDLES TO THE G&N INDICATOR CONTROL PANEL	G&N IND. CONT. PANEL	0102625	ECP-277	SEE ITEM 3			G&N 11, 12, 112 THRU 124 & 100 SPARES
15.0	BOLT PLATING CHANGED FROM CAD. TO NI.	NAV BASE & OPTICAL UNIT ASSEMBLY	0102610	ECP-211		8102624		
15.1					1899950-041		1899950-121	G&N 20
15.2					1899950-051		1899950-091	G&N 12 & SPARE
15.3					1899950-071		1899950-111	G&N 11, 10, 12 & SPARE
15.4					1899950-041		1899950-131	G&N 12
15.5					1899950-081		1899950-141	G&N 12
16.0	BRIGHTNESS POT CAM REPLACEMENT	GEN INDICATOR CONTROL PANEL ASSEMBLY	0102629	ECP-243	1014664-011	8102647	1014664-021	110, 111, 121 THRU 124 AND SPARES

NOTES:

1. ITEM NUMBERS HAVING ANY OTHER NUMBER THAN ZERO ("0") AS THE FIRST DECIMAL ARE LISTED FOR REFERENCE ONLY.

ZONE LTR	DESCRIPTION	DATE	APPROVED	ZONE LTR	DESCRIPTION	DATE	APPROVED	ZONE LTR	DESCRIPTION	DATE	APPROVED
BY	REVISION STATUS CHANGED	CHG NO. 15 SEP 74	BT	REVISION STATUS CHANGED	CHG NO. 28 AUG 74	JJ Y	BM	REVISION STATUS CHANGED	CHG NO. 2 AUG 74	AN	CUR
BZ	REVISION STATUS CHANGED	27	BU	REVISION STATUS CHANGED	27	Y	BN	REVISION STATUS CHANGED	27	AN	CUR
			BV	REVISED PER TDR 24374	20 AUG 74	DE	BR	REVISION STATUS CHANGED	21 AUG 74	AN	CUR
			BW	REVISION STATUS CHANGED	1 SEP 74	EE	BS	REVISION STATUS CHANGED	22 AUG 74	AN	CUR

ZONE LTR	DESCRIPTION	DATE	APPROVED	ZONE LTR	DESCRIPTION	DATE	APPROVED	ZONE LTR	DESCRIPTION	DATE	APPROVED
F	REVISION FREPLACES REVISIONS WITH RELABEL PER TDR 24374	SEC 65	EY 11	G	REVISED PER TDR 25186	14 MAY 75	EP 11	H	REVISED PER TDR 25359	14 MAY 75	EP 11
J	REVISED PER TDR 25469	14 MAY 75	EP 11	K	REVISED PER TDR 26141	25 FEB 75	EP 11	L	REVISED PER TDR 26434	25 FEB 75	EP 11
M	REVISED PER TDR 26436	25 FEB 75	EP 11	N	REVISED PER TDR 26513	25 FEB 75	EP 11	P	REVISED PER TDR 26570	25 FEB 75	EP 11
R	REVISION STATUS CHANGED	1 MAY 75	EP 11	S	REVISION STATUS CHANGED	1 MAY 75	EP 11	T	REVISION STATUS CHANGED	1 MAY 75	EP 11
U	REVISION STATUS CHANGED	1 MAY 75	EP 11	V	REVISION STATUS CHANGED	1 MAY 75	EP 11	W	REVISION STATUS CHANGED	1 MAY 75	EP 11
Y	REVISION STATUS CHANGED	1 MAY 75	EP 11	Z	REVISED PER TDR 28808	3 MAY 75	EP 11	AA	REVISION STATUS CHANGED	1 MAY 75	EP 11
AB	REVISION STATUS CHANGED	1 MAY 75	EP 11	AC	REVISION STATUS CHANGED	1 MAY 75	EP 11	AD	REVISION STATUS CHANGED	1 MAY 75	EP 11
AE	REVISION STATUS CHANGED	1 MAY 75	EP 11	AF	REVISION STATUS CHANGED	1 MAY 75	EP 11	AG	REVISION STATUS CHANGED	1 MAY 75	EP 11
AH	REVISION STATUS CHANGED	1 MAY 75	EP 11	AJ	REVISION STATUS CHANGED	1 MAY 75	EP 11	AK	REVISION STATUS CHANGED	1 MAY 75	EP 11
AL	REVISION STATUS CHANGED	1 MAY 75	EP 11	AM	REVISION STATUS CHANGED	1 MAY 75	EP 11	AN	REVISION STATUS CHANGED	1 MAY 75	EP 11
AP	REVISION STATUS CHANGED	1 MAY 75	EP 11	AR	REVISION STATUS CHANGED	1 MAY 75	EP 11	AS	REVISION STATUS CHANGED	1 MAY 75	EP 11
AT	REVISION STATUS CHANGED	1 MAY 75	EP 11	AU	REVISED PER TDR 32330	1 MAY 75	EP 11	AV	REVISION STATUS CHANGED	1 MAY 75	EP 11
AW	REVISION STATUS CHANGED	1 MAY 75	EP 11	AY	REVISION STATUS CHANGED	1 MAY 75	EP 11	AZ	REVISION STATUS CHANGED	1 MAY 75	EP 11
BA	REVISION STATUS CHANGED	1 MAY 75	EP 11	BB	REVISION STATUS CHANGED	1 MAY 75	EP 11	BC	REVISION STATUS CHANGED	1 MAY 75	EP 11
BD	REVISION STATUS CHANGED	1 MAY 75	EP 11	BE	REVISION STATUS CHANGED	1 MAY 75	EP 11	BG	REVISION STATUS CHANGED	1 MAY 75	EP 11
BH	REVISION STATUS CHANGED	1 MAY 75	EP 11	BI	REVISION STATUS CHANGED	1 MAY 75	EP 11	BK	REVISION STATUS CHANGED	1 MAY 75	EP 11
BL	REVISION STATUS CHANGED	1 MAY 75	EP 11								

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES 2 PLACE 3 PLACE DECIMALS DECIMALS ANGLES	AC ELECTRONICS DIVISION GENERAL MFG INC MURKIN MS	MANNED SPACERCRAFT CENTER HOUSTON TEXAS
DRAWN <u>Sept 65</u> DATE <u>1975</u>	APPROVAL <u>John W.</u> CONTRACT NAS 9-977	MASTER RETROFIT KIT LIST APOLLO G&N (AC ELECTRONICS)
CHECKED <u>John W.</u>	APPROVAL <u>John W.</u>	SIZE <u>1 CF 5</u>
APPRV'D <u>John W.</u>	APPROVAL <u>John W.</u>	CODE IDENT NO <u>D 99974</u>
DO NOT SCALE THIS DRAWING	MIT APPROVAL <u>John W.</u>	1021200
MATERIAL <u>10000000</u>	APPROVAL <u>John W.</u>	SCALE <u>—</u>
NEXT ASY <u>1021200</u>	USED ON <u>1021200</u>	TIME <u>1 CF 5</u>
APLICATION <u>1021200</u>	APPROVAL <u>John W.</u>	
APPROVAL <u>John W.</u>	MIT APPROVAL <u>John W.</u>	

8 7 6 5 4 3 2 1

ITEM NO.	DESCRIPTION	END ITEM	REVISIONS				REVISIONS			
			ZONE LTR	DESCRIPTION	DATE APPROVED	ZONE LTR	DESCRIPTION	DATE APPROVED		
			BY	REVISION STATUS CHANGED	CHG NO. 15 SEP 66	BY	REVISION STATUS CHANGED	CHG NO. 15 SEP 66		
17.0	ADD EYEPiece STOWAGE UNIT TO G&N SYSTEM - BLOCK 1 SERIES 50.	G&N SYSTEM	R I B NO.	AUTHORIZATION ECR. NO. OR S.O.W.	P/N MOD. (REF)	RFK NO.	NEW P/N (REF)	S/N		
17.1	EYEPiece STOWAGE	0102624 ECP 169				8102630				
17.2	G&N INDICATOR CONTROL PANEL	0102622 ECP 169, 265, 277	1015053-011	1014578-041	10102623 ECP 169	10102643 ECP 169	1021255-011	G&N 12 "50" SPARE G&N 20		
18.0	ADD EYEPiece STOWAGE UNIT TO G&N SYSTEM - BLOCK 1 SERIES 100	G&N SYSTEM				8102633		G&N 12 "50" SPARE		
18.1	EYEPiece STOWAGE	0102624 ECP 169				8102632	1021255-021	G&N 110, 111, 121, 122, 123, 124		
18.2	G&N INDICATOR CONTROL PANEL	0102622 ECP 169, 265	1014664-011	10102633 ECP 169	1014664-021		100 SPARES	G&N 110, 111, 121, 122, 123, 124		
19.0	G & N QUA L RETROFITS	G & N SYSTEM				8102649	12	"100 SPARES		
19.1	AGE HARNESS & END CONNECTOR ASS'Y	0102614	1015056-021	10102629 ECP 250, 253, 264, 268, 269	1015056-031		12			
19.2	COUPLING DISPLAY ASS'Y	0102619	1016902-021	10102636 ECP 266, 268, 269	1021304-021		12			
19.3	POWER & SERVO ASS'Y	0102617	1007257-041	10102634 ECP 266, 268, 269	1007257-061		12			
19.4	IMU	0102617	1001500-041	10102646 ECP 225, 270	1001500-071		12			
20.0	MOISTURE SEAL & STRUCTURAL STRENGTH	AGE HARNESS & END CONNECTOR ASS'Y	0102626	1015086-000	10102646 ECP 225, 270	1015086-011	100, 110, 111, 121, 122, 123, 124 SERIES			
21.0	NEW GEN FILTER MODULE, ELIMINATE CORROSION MOISTURE PROOF CONNECTOR WIRING A, TRAY 7		0102618	ECP 266, 268, 269	8102635		100 SPARES			
21.1	PSA			1007570-011	1007570-021		100 SERIES			
21.2				1001500-051	1001500-081		G & N 109, 110, 111			
22.0	MODIFY THE OPTICS UNIT FOR PROPER MATING OF CONNECTORS USED IN THE THERMAL-VACUUM TESTING PROGRAM.	IMU		1001500-061	1001500-091		121, 122, 123, 124 SPARE			
23.0	DISABLING "TRACK" AND "TRACKER POWER" SWITCHES	G & N INDICATOR CONTROL PANEL ASS'Y	0102632	ECP 209	1014664-021	10102654 ECP 328	1014664-031	110, 111, 121, 122, 123, 124 AND SPARES		
24.0	MOISTURE SEALING	CDU ASSEMBLY	0102620	ECP 267	1015500-021	10102652 ECP 267	1015500-041	SPARES FOR G&N 12 AND SERIES 100		
25.0	MOISTURE SEALING	CDU ASSEMBLY	0102620	ECP 267	1015500-031	10102653 ECP 267	1015500-051	SPARES FOR SERIES 100 OPTICS CDU		
26.0	MOISTURE PROOFING	PSA	0102628	ECP 206		8102650				
26.1				1007257-031			NO CHANGE	G&N 20		
26.2				1007257-051				G&N 17		
26.3				1007257-061				G&N 12		
26.4				1007570-021				G&N 110 THRU 124		
27.0	MOISTURE PROOFING		0102628	ECP 206		8102651				
27.1				1007257-031			NO CHANGE	G&N 20		
27.2				1007257-051				G&N 17		
27.3				1007257-061				G&N 12		
27.4				1007570-021				G&N 110 THRU 124		
27.5	MOISTURE PROOFING	TRACKER X & Y	0102628	ECP 206	1007585-011	8102651	NO CHANGE	G&N 110 THRU 124		
28.0	1. GROUNDING OF GROUP SHIELDS 2. MOISTURE SEAL	AGE HARNESS AND PSA END CONNECTOR ASSY	0102633	ECP 225, 270	1015086-000	10102655 ECP 225	1015086-021	G&N 110		
29.0	GROUNDING OF GROUP SHIELDS	AGE HARNESS AND PSA END CONNECTOR ASSY	0102634	ECP 225	1015086-000	10102656 ECP 225	1015086-031	G&N 109		

UNLESS OTHERWISE SPECIFIED	AC ELECTRONICS DIVISION	MANNED
DIMENSIONS IN INCHES	GENERAL MOTORS CORP MILWAUKEE WI	SPACECRAFT CENTER
TOLERANCES ON	1007570-000	Houston Texas
2 PLACE, 3 PLACE	2 MAP 66	
DECIMALS DECIMALS ANGLES	DRAWN BY	
+ + + +	DATE	
- - - -	10/12/66	
	CHECKED	
	APPROVAL	
	10/12/66	
DO NOT SCALE THIS DRAWING	CONTRACT HAS 9-497	
MATERIAL	NASA APPROVAL	
APPROVAL	MIT APPROVAL	
	SIZE CODE IDENT NO	
	D 99974	1021200
	SCALE	
		SHEET 2 OF 3

ITEM NO.	DESCRIPTION	END ITEM	R.I.B. NO. (REF)	AUTHORIZATION ECP. NO OR S.O.W.	P/N MOD. (REF)	RFN NO.	NEW P/N (REF)	S/N
30.0	COATING OF EXPOSED BERYLLIUM PARTS		0102611	ECP 219	189982-	8102625	NO CHANGE	G&N 12, 23, 21, 22
30.1		NAVIGATION BASE ASSY			1011000-			
30.2		OPTICAL UNIT ASSY			2011000-			
30.3		PSA TOE CAP			1008535	1007220		
31.0	COATING OF EXPOSED BERYLLIUM PARTS	NAVIGATION BASE AND OPTICAL UNIT ASSY	0102611	ECP 219	1899850	8102625	NO CHANGE	BLK 2 (50 & 100) SPARES
32.0	ADDITION OF LEM B HARNESS BRACKET TO IMU			ECP 306				
32.1		INERTIAL MEASUREMENT UNIT AND PULSE TORQUE ASSY	0102636		6007001-011	8102658	6007001-031	G&N 601, 602
32.2		INERTIAL MEASURING UNIT ASSY			2018601-011		2018601-031	G&N 601, 602
32.3		INERTIAL MEASUREMENT UNIT & PULSE TORQUE ASSY			6007001-021		6007001-041	G&N 603, 604 & SPARE
32.4		INERTIAL MEASURING UNIT ASSY			2018601-041		2018601-051	G&N 603, 604 & SPARE
33.0	PAINTING OF G&N BERYLLIUM SURFACES		0102611	ECP 219		8102625		
33.1		FRAME ASSY NAV BASE			189982-000		189982-011	G&N 12
33.2								50 SERIES SPARE
33.3								100 SERIES SPARE
33.4								G&N 121
33.5								G&N 122
33.6		OPTICAL UNIT ASSY			1011000-005		1011000-005	G&N 12
33.7					1011000-007		1011000-007	50 SERIES SPARE
33.8					2011000-001		2011000-001	G&N 121
33.9					2011000-021		2011000-022	G&N 122
33.10					2011000-021		2011000-022	100 SERIES SPARE
33.11		PSA TOE CAP			1008535		1008535	G&N 12
33.12					1008535		1008535	G&N 121
33.13					1008535		1008535	G&N 122, 123, 124
33.14		NAV BASE & OPTICAL UNIT ASSY			1899850-091		1899850-091	G&N 12
33.15						-161	-161	50 SERIES SPARE
33.16						-141	-151	100 SERIES SPARE
33.17						-131	-131	G&N 121
33.18						-141	-151	G&N 122
34.0	MOISTURE PROOFING	PSA, FRAMES #1-4	0102637	ECP 269	1007531-011	8102659	1007531-031	SPARES
34.1	MOISTURE PROOFING	PSA, FRAMES #5-10	0102637	ECP 269	1007532-011		1007532-031	
34.2	MOISTURE PROOFING	IMU	0102638	ECP 269	1007533-011		1007533-031	
34.3	MOISTURE PROOFING	PSA MODULES	0102638	ECP 269	1007534-011		1007534-031	
					1007535-011	8102660	1007535-031	SPARES
					1007536-011		1007536-031	
					1007537-011		1007537-031	
					1007538-011		1007538-031	
					1007539-011		1007539-031	
					1007540-011		1007540-031	

REVISIONS		DATE APPROVED	
Z	THIS SHEET ISSUED PER TDRR 28808	CHG NC	9 MAY 66 JC AC
AA	REVISION STATUS CHANGED		1 JUN 66 LM PP
AB	REVISED PER TDRR 29363		10 JUN 66 HAT
AC	REVISED PER TDRR 29507		1 JUL 66 JAR
AU	REVISED PER TDRR 29822		1 JUL 66 JAH
AE	REVISION STATUS CHANGED		1 JUL 66 JEP
AF	REVISION STATUS CHANGED		1 AUG 66 GU
AG	REVISION STATUS CHANGED		1 SEP 66 JJB
AH	REVISION STATUS CHANGED		1 OCT 66 JEB
AJ	REVISED PER TDRR 31245		1 NOV 66 JEB
AK	REVISION STATUS CHANGED		1 NOV 66 JBB APW
AL	REVISION STATUS CHANGED		1 DEC 66 JEB
AM	REVISION STATUS CHANGED		1 JAN 67 JEB
AN	REVISION STATUS CHANGED		1 FEB 67 JEB
AP	REVISION STATUS CHANGED		1 MAR 67 JEB
AR	REVISION STATUS CHANGED		1 APR 67 JEB
AS	REVISION STATUS CHANGED		1 MAY 67 JEB
AT	REVISION STATUS CHANGED		1 JUN 67 JEB
AU	REVISED PER TDRR 32030		1 JUL 67 JEB
AV	REVISION STATUS CHANGED		1 AUG 67 JEB
AW	REVISION STATUS CHANGED		1 SEP 67 JEB
AY	REVISION STATUS CHANGED		1 OCT 67 JEB
AZ	REVISION STATUS CHANGED		1 NOV 67 JEB
BA	REVISION STATUS CHANGED		1 DEC 67 JEB
BB	REVISION STATUS CHANGED		1 JAN 68 JEB
BC	REVISION STATUS CHANGED		1 FEB 68 JEB
BD	REVISION STATUS CHANGED		1 MAR 68 JEB
BE	REVISION STATUS CHANGED		1 APR 68 JEB
BF	REVISION STATUS CHANGED		1 MAY 68 JEB
BG	REVISION STATUS CHANGED		1 JUN 68 JEB
BH	REVISION STATUS CHANGED		1 JUL 68 JEB
BJ	REVISION STATUS CHANGED		1 AUG 68 JEB
BK	REVISION STATUS CHANGED		1 SEP 68 JEB
BL	REVISION STATUS CHANGED		1 OCT 68 JEB
BM	REVISION STATUS CHANGED		1 NOV 68 JEB
BN	REVISION STATUS CHANGED		1 DEC 68 JEB
BP	REVISION STATUS CHANGED		1 JAN 69 JEB
BR	REVISION STATUS CHANGED		1 FEB 69 JEB
BS	REVISION STATUS CHANGED		1 MAR 69 JEB
BT	REVISION STATUS CHANGED		1 APR 69 JEB
BU	REVISION STATUS CHANGED		1 MAY 69 JEB
BV	REVISION STATUS CHANGED		1 JUN 69 JEB
BW	REVISION STATUS CHANGED		1 JUL 69 JEB
BY	REVISION STATUS CHANGED		1 AUG 69 JEB
BZ	REVISION STATUS CHANGED		1 SEP 69 JEB

UNLESS OTHERWISE SPECIFIED	AC ELECTRONICS DIVISION		MANAGED SPACECRAFT CENTER	
DIMENSIONS ARE IN INCHES	GENERAL MOTORS CORP. MILWAUKEE WIS		HOUSTON, TEXAS	
2 PLACE 3 PLACE	DEGREES DECIMALS DECIMALS ANGLES			
+ - - - -	+ + + - -			
DO NOT SCALE THIS DRAWING				
DRAWN BY: [Signature] DATE: 19 MAY 66				
CHECKED BY: [Signature]				
APPROVAL: [Signature]				
CONTRACT NASA 9-497				
MATERIAL:	NASA APPROVAL:	MIT APPROVAL:	SIZE:	CODE IDENT NO: D 99974 1021200
			SCALE:	SHEET 3 OF 8

ITEM NO.	DESCRIPTION	END ITEM	R. I. B. NO. (REF)	AUTHORIZATION ECV. NO. OR S.O.W.	P/N MOD. (REF)	RFK NO.	NEW P/N (REF)	S/N
					1007511-011		1007511-021	
					1007414-011		1007414-021	
					1007549-011		1007549-041	
					1007518-011		1007518-041	
					1007518-021		1007518-031	
					1007519-011		1007519-021	
					1007522-011		1007522-021	
					1007523-011		1007523-021	
					1007524-011		1007524-021	
					1007525-011		1007525-021	
					1007526-011		1007526-021	
					1007527-011		1007527-021	
					1007528-011		1007528-021	
					1007540-011		1007540-041	
					1007540-021		1007540-031	
					1007541-011		1007541-041	
					1007541-021		1007541-051	
					1007542-011		1007542-021	
					1007543-011		1007543-041	
					1007543-021		1007543-031	
					1007544-011		1007544-021	
					1007545-011		1007545-041	
					1007545-021		1007545-031	
					1007546-011		1007546-021	
					1007547-011		1007547-021	
					1007549-021		1007549-031	
					1007551-011		1007551-021	
					1007552-011		1007552-021	
					1007554-011		1007554-021	
					1007555-011		1007555-021	
					1007556-011		1007556-021	
					1007557-011		1007557-021	
					1007558-011		1007558-021	
					1007561-011		1007561-021	
					1007563-011		1007563-021	
					1007564-011		1007564-021	
					1007567-011		1007567-021	
					1007581-011		1007581-021	
					1007590-021		1007590-031	
					1007591-011		1007591-021	
					1007651-011		1007651-021	
					1001598-021		1001598-041	
					1007509-021		1007509-031	
					1001599-011		1001599-031	
					1007521-011		1007521-041	
					1007550-011		1007550-051	
					1007550-021		1007550-061	
					1007550-031		1007550-071	
					1007550-041		1007550-081	
35.0 REPLACING PULSE TORQUE POWER SUPPLY WITH IMPROVED MODULE								
35.1	IMU & ASSOCIATED ELECTRONICS TC ASSY	002640	ECP 248	2010747-021	102653	2010747-031	602	
35.2	PULSE TORQUE AND THERMOCOUPLE ASSY	002640	ECP 248	6010658-01A	102663	6010656-021	602	
35.3	IMU & PULSE TORQUE ASSEMBLY	002640	ECP 248	6007001-061	102663	6007001-051	603,604,605,606 AND SPARE	
35.4	PULSE TORQUE ASSEMBLY	002640	ECP 248	6007000-051	102663	6007000-041	603,604,605,606 AND SPARE	
35.5	POWER, SERVO AND TC ASSY, C/M	002639	ECP 248	2010743-011	102664	2010743-021	202	
35.6	POWER AND SERVO ASSEMBLY, C/M	002639	ECP 248	2007200-011	102664	2007200-051	203,204 AND SPARE	
	ADDITION OF SILICONE RUBBER STRIPS TO THE EYEPIECE STOWAGE UNIT	0102647	ECP 407					
	STOWAGE UNIT EYEPIECE			1021255-011	1021255	1021255-031	G & N 12,20	
	STOWAGE UNIT EYEPIECE			1021255-021	1021263	1021255-041	G & N 110,121,122,123,124,111	
	CASE - EYEPIECE STOWAGE			1021314-001	1021279	1021314-011	SPARE	

REVISIONS		DESCRIPTION		DATE APPROVED	
ZONE	LTR	AU	THIS SHEET ADDED PER	CHG NO	DATE
	RE	AU	TDR 29823	B	10/14/04
	RE	AU	REVISED PER TDR 4-5822	JUL 04	10/14/04
	RE	AU	REVISED FOR TDR 30542	JUL 04	10/14/04
	AG	AG	REVISION STATUS CHANGED	JUL 04	10/14/04
	AN	AN	REVISION STATUS CHANGED	JUL 04	10/14/04
	AJ	AJ	REVISION STATUS CHANGED	JUL 04	10/14/04
	AK	AK	REVISION STATUS CHANGED	JUL 04	10/14/04
	AL	AL	REVISION STATUS CHANGED	JUL 04	10/14/04
	AM	AM	REVISION STATUS CHANGED	JUL 04	10/14/04
	AN	AN	REVISION STATUS CHANGED	JUL 04	10/14/04
	AP	AP	REVISION STATUS CHANGED	JUL 04	10/14/04
	AR	AR	REVISION STATUS CHANGED	JUL 04	10/14/04
	AS	AS	REVISION STATUS CHANGED	JUL 04	10/14/04
	AT	AT	REVISION STATUS CHANGED	JUL 04	10/14/04
	AU	AU	REVISED PER TDR 32030	JUL 04	10/14/04
	AV	AV	REVISION STATUS CHANGED	JUL 04	10/14/04
	AW	AW	REVISION STATUS CHANGED	JUL 04	10/14/04
	AY	AY	REVISION STATUS CHANGED	JUL 04	10/14/04
	AZ	AZ	REVISION STATUS CHANGED	JUL 04	10/14/04
	BA	BA	REVISION STATUS CHANGED	JUL 04	10/14/04
	BB	BB	REVISION STATUS CHANGED	JUL 04	10/14/04
	BC	BC	REVISION STATUS CHANGED	JUL 04	10/14/04
	BD	BD	REVISION STATUS CHANGED	JUL 04	10/14/04
	BE	BE	REVISION STATUS CHANGED	JUL 04	10/14/04
	BF	BF	REVISION STATUS CHANGED	JUL 04	10/14/04
	BG	BG	REVISION STATUS CHANGED	JUL 04	10/14/04
	BH	BH	REVISION STATUS CHANGED	JUL 04	10/14/04
	BJ	BJ	REVISION STATUS CHANGED	JUL 04	10/14/04
	BL	BL	REVISION STATUS CHANGED	JUL 04	10/14/04
	BM	BM	REVISION STATUS CHANGED	JUL 04	10/14/04
	BU	BU	REVISION STATUS CHANGED	JUL 04	10/14/04
	BP	BP	REVISION STATUS CHANGED	JUL 04	10/14/04
	BR	BR	REVISION STATUS CHANGED	JUL 04	10/14/04
	BS	BS	REVISION STATUS CHANGED	JUL 04	10/14/04
	BT	BT	REVISION STATUS CHANGED	JUL 04	10/14/04
	BU	BU	REVISION STATUS CHANGED	JUL 04	10/14/04
	BV	BV	REVISION STATUS CHANGED	JUL 04	10/14/04
	BW	BW	REVISION STATUS CHANGED	JUL 04	10/14/04
	BY	BY	REVISION STATUS CHANGED	JUL 04	10/14/04
	BZ	BZ	REVISION STATUS CHANGED	JUL 04	10/14/04

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE IN THOUSANDS OF AN INCHES	AC ELECTRONICS DIVISION GENERAL MOTORS CORP. MUNAWFIE WIS	MANNED SPACECRAFT CENTER HOUSTON TEXAS
2 PLACES 3 PLACES DECIMALS DECIMALS ANGLES + - + - + -	APR 14 JUN 04 DRAWN BY: JUN 04 CHECKED BY: JUN 04 APPROVAL:	MASTER RETROFIT KIT LIST APOLLO G EN (AC ELECTRONICS)
DO NOT SCALE THIS DRAWING CONTRACT NAS 9-497	NASA APPROVAL: MIT APPROVAL:	SIZE CODE IDENT NO: D 99974 1021200
APPROVAL:	SCALE:	SHEET 4 OF 5

ITEM NO.	DESCRIPTION	END ITEM	R.I.B. NO.(REF)	AUTHORIZATION ECP NO. OR S.O.W.	P/N MOD. (REF)	RFK NO.	NEW P/N (REF)	S/N
35.7		POWER & SERVO ASSEMBLY C/M	0102639	ECP248	2007200-071	8102664	2007200-081	G&N 203,204,AND SPARE NO.1
37.0	ADDITION OF ASTROSEXTANT PASSIVE THERMAL PROTECTION SYSTEM (BLOCK 1 "50")		0102653	ECP426		8102682		
.1		NAVIGATION BASE & OPTICAL UNIT ASSEMBLY			1899950-091		1899950-251	G&N 17
.2					1899950-221		1899950-261	G&N 20
.3			0102653	ECP 426	1899950-231	8102682	1899950-271	G&N 12
.4			0102654	ECP 427	1899950-241	8102680	1899950-281	G&N 111
38.0	ADDITION OF ASTROSEXTANT PASSIVE THERMAL PROTECTION SYSTEM (BLOCK 1 "100")		0102654		1899950-171	8102680	1899950-291	G&N 121
.1		NAVIGATION BASE & OPTICAL UNIT ASSEMBLY			1899950-211	8102662	1899950-311	G&N 123
.2			0102654		1899950-221	8102708	1899950-321	G&N 122
.3			0102662	ECP 427	1899950-231	8102708	1899950-321	G&N 122
.4			0102662	ECP 290	1899950-241	8102671	1899950-341	G&N 12
39.0	CORRECT IDENTIFICATION OF NAV. BASE & OPTICS ASSY		0102646	ECP 290	1899950-171		1899950-181	G&N 109,111
.1		NAV. BASE & OPTICAL UNIT ASS'Y			1899950-191		1899950-211	G&N 123
.2					1899950-221		1899950-231	G&N 122,102 SPARE
.3					1899950-241		1899950-251	G&N 20
.4					1899950-261		1899950-271	G&N 12
.5					1899950-281		1899950-291	G&N 12
.6					1899950-301		1899950-311	G&N 12
.7					1899950-321		1899950-331	G&N 12
40.0	ADD VELCRO STRIPS FOR STORAGE AND SPACERS TO MTG. SURFACE.		0102646	ECP 290	1899950-171	8102671	1899950-241	G&N 50 SPARE
		OPTICS COVER ASSY	0102656	ECP423	104532	8102683	1023080-011	12,121,122,123,124
41.0	REPLACEMENT OF IMU MOUNTING BOLTS							
.1		GEN. SYSTEM		ECP 359				
.2		NAV. BASE AND OPTICAL UNIT INST. KIT	0102643	ECP 359	2899950-01	8107668	2899950-031	G&N 201,202,203,204,205,206
.3		NAV. BASE ASSEMBLY - LEM	0102643	ECP 359	2899950-02	8102665	2899950-021	G&N 601,602
42.0	ADD M. TAL BELLOWS TO BLOCK II		0102643	ECP 359	2899950-03	8102684	2899950-021	G&N 603,604,605,606
.1		NAV. BASE AND OPTICAL UNIT INST. KIT	0102642	ECP 373	2899950-031	8102667	2899950-021	G&N 202,204,205,206
					*2010000-031		*2010790-011	
					*2010000-034		*2010790-021	
					*2010000-034		*2010790-021	
					*2010000-041		*2010790-031	
42.2								
43.0	CORROSION PROTECTION							
.1		* THE OPTICAL UNIT 201000 IS NOT TO BE MODIFIED BUT IS BEING INSTALLED INTO THE OPTICAL UNIT AND BELLOWS ASSY 2010790.		ECP 388				
.2								
.3								
.4								
.5								
.6								
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.8								
.9								
.10								
.11								
.12								
44.0	REPLACEMENT OF COVER SPRING IN THE EBU							
.1		GEN. SYSTEM		ECP 456				
.2		STOWAGE UNIT EYEPIECE	0102663	ECP 456	1021255-031	8102693	1021255-051	G&N 12
.3		STOWAGE UNIT EYEPIECE	0102663	ECP 456	1021255-041	8102693	1021255-061	G&N 12,111,124
.4		CASE EYEPIECE STOWAGE	0102663	ECP 456	1021255-051	8102687	1021255-071	SPARE
.5		SIG. CORD ASSY	0102659	ECP 438	1007700-021	8102687	1007700-041	G&N 12
.6		SIG. CORD ASSY	0102659	ECP 438	1007700-031	8102687	1007700-051	G&N 12,122,123
.7		FRAME ASSY	0102659	ECP 438	1007670-021	8102687	1007670-041	G&N 2,25, SPARE
.8		FRAME ASSY	0102659	ECP 438	1007670-031	8102687	1007670-051	G&N 2,25, SPARE
.9		NAVIGATION BASE ASSY LEM	0102668	ECP 462	6899950-011	8102701	6899950-031	G&N 601,602
.10		NAVIGATION BASE ASSY LEM	0102668	ECP 462	6899950-021	8102701	6899950-031	G&N 602,603,604,605

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON 3 PLACES 3 PLACE DECIMALS DEGREES ANGLES		AC ELECTRONICS DIVISION GENERAL MOTORS CORP. WILMINGTON, CA		MANAGED SPACECRAFT CENTER HOUSTON, TEXAS	
$+ \quad - \quad + \quad - \quad +$ $- \quad + \quad - \quad + \quad +$		DRAWING # G-1756 DATE 10-10-66 CREDITS DIVISION APPROVAL E. AUSTIN		MASTER RE-PROFIT KIT LIST APOLLO G-E-N (AC ELECTRONICS)	
DO NOT SCALE THIS DRAWING		CONTRACT VAS 9-4937		SIZE	CODE IDENT NO.
MATERIAL		NASA APPROVAL AG METZGER		99974	1021200
APPROVAL		MIT APPROVAL N. KUPFER		SCALE	SHEET 5 OF 6

ITEM NO.	DESCRIPTION	END ITEM	R.I.B. NO. (REF)	AUTHORIZATION ECP NO. OR S.O.W.	P/N MOD. (REF)	RFK NO.	NEW P/N (REF)	S/N
47.0	REPLACING GIMBAL SERVO AMPLIFIER WITH IMPROVED MODULE			ECP 461	200714011	8102699	2007114-021	MODULE SPARES, G&N 203
47.1	GIMBAL SERVO AMPLIFIER ASSEMBLY	0102669	ECP 461	2007200-051	8102696	2007200-081	2041603A, 204, 605 AND SPARES	
47.2	POWER AND SERVO ASSEMBLY, C/M	0102666	ECP 461	2007200-061	-	2007200-071	G&N 203, 204, AND SPARE NO. 1	
47.3	POWER AND SERVO ASSEMBLY, LEM	0102666	ECP 461	2007200-041	8102696	2007200-051	G&N 603, 604, 605, SPARE NO. 1 SPARE NO. 2	
47.4	POWER, SERVO & THERMOCOUPLE ASSEMBLY, CM	0102666	ECP 461	2010743-021	8102670	2010743-031	G&N 202	
47.5	POWER, SERVO & THERMOCOUPLE ASSEMBLY, LEM	0102666	ECP 461	2010655-011	8102670	2010655-021	G&N 602	
48.0	IMPROVEMENT FOR CDU CONNECTOR MATING	COUPLING DISPLAY UNIT	0102658	ECP 429	1015500-041	8102684	1015500-071	G&N 121, 122, 123
49.0	ADDITION OF EJECTABLE DUST COVERS		0102670		8102692			
49.1	APTPS	0102670	426	-	8102692	1021373-021	12	
49.2	APTPS	0102670	427	-	8102692	1021373-031	121	
50.0	RELAY REPLACEMENT	CDU RESOLVER LOADS ASS'Y	0102661	ECP 446	1007510-021	8102689	1007510-031	
50.1	TRAY G MODULE REPLACEMENT	CDU AND POWER SUPPLY ELECT. ASS'Y	0102661	ECP 446	1007576-021	8102688	1007576-031	
50.2	TRAY G REPLACEMENT	PSA	0102661	ECP 446	1007570-021	8102688	1007570-031	
50.3	REPLACE RELAY AND DIODE MODULE	CONTROL ELEC ASS'Y	0102660	ECP 446	1015064-021	8102690	1015064-031	
51.0	ADDITION OF PROTECTIVE COVERS FOR G&N INDICATOR CONTROL PANEL ASSY.	0102664	ECP 457	2014578-011	8102694	2014578-021	203 THRU 207 SPARES	
51.1	BLOCK 2 SWITCH MECHANISMS RETICLE BRIGHTNESS CONTROL ASSY.	0102664	ECP 457	2014656-011	8102695	2014656-021	SPARES	
52.0	ADDITION OF VIBRATION DAMPER PLATE AND PREVENTION OF READ LOOP OSCILATION			ECP 499 AND ECP 515	2010744-021	8102722	2010744-041	
52.1	COUPLING DATA UNIT ASSEMBLY C/M & LEM	N/A	ECP 515	2010744-031	8102721	2010744-051	G&N 202	
			ECP 499	2007222-071	8102712	2007222-101	G&N 203 & 204	
			ECP 515	2007218	-			
			ECP 499	2007222-091	8102718	2007222-161	G&N 205 & 2 SPARES	
			ECP 515	2007222-111	8102723	2007222-161	G&N 206	
			ECP 499	2007222-081	8102712	2007222-121	G&N 604	
			ECP 499	2007222-061	8102712	2007222-131	G&N 603, 605, 606 & 2 SPARES	
			ECP 515	2010744-021	8102719	-	G&N 602	
52.2	COARSE SYSTEM ASSEMBLY	N/A	ECP 515	2007236-011	8102720	2007236-031		
53.0	ADDITION OF ASTROSEXTANT PASSIVE THERMAL PROTECTION SYSTEM (BLOCK II)	OPTICAL UNIT AND BELLows ASSEMBLY	0102673	ECP 0428	2010790-021	8102704	2010790-061	G&N 204 & 205
			ECP 0428	200790-031	8102704	2010790-071	G&N 206	
53.1	ADDITION OF ASTROSEXTANT PASSIVE THERMAL PROTECTION SYSTEM (BLOCK II)	ASTROSEXTANT PASSIVE THERMAL PROTECTION SYSTEM ASSEMBLY	0102674	ECP 0428	2010790-091	8102704	2010790-111	G&N 207 THRU 209
53.2	ADDITION OF ASTROSEXTANT PASSIVE THERMAL PROTECTION SYSTEM (BLOCK II)	G&N SPACECRAFT EQUIPMENT COMMAND MODULE BLK II	0102675	ECP 0428	2015000-0	8102706	2015000	G&N 204 THRU 209
53.3	ADDITION OF ASTROSEXTANT PASSIVE THERMAL PROTECTION SYSTEM (BLOCK II)	OPTICAL UNIT AND BELLows ASSEMBLY	0102654	ECP 0428	2010790-011	8102680	2010790-051	G&N 202

REVISED		DESCRIPTION		DATE APPROVED
ZONE	LTR			
AU		REVISED PER TDRR 32030	CHG. NO. 29	JUN 1968 R/W
AV		REVISED PER TDRR 32086	CHG. NO. 68	JUL 1968 R/W
AW		REVISION STATUS CHANGED	CHG. NO. 68	JUN 1968 R/W
AY		REVISED PER TDRR 32204	CHG. NO. 68	JUN 1968 R/W
AZ		REVISED PER TDRR 32241	CHG. NO. 68	JUN 1968 R/W
BA		REVISED PER TDRR 32393	CHG. NO. 68	JUN 1968 R/W
BB		REVISED PER TDRR 32449	CHG. NO. 68	JUN 1968 R/W
BC		REVISED PER TDRR 32514	CHG. NO. 68	JUN 1968 R/W
BD		REVISED PER TDRR 32954	CHG. NO. 68	JUN 1968 R/W
BE		REVISION STATUS CHANGED	CHG. NO. 68	JUN 1968 R/W
BF		REVISED PER TDRR 33018	CHG. NO. 68	JUN 1968 R/W
BG		REVISION STATUS CHANGED	CHG. NO. 68	JUN 1968 R/W
BH		REVISED PER TDRR 33334	CHG. NO. 68	JUN 1968 R/W
BJ		REVISED PER TDRR 33430	CHG. NO. 68	JUN 1968 R/W
BK		REVISED PER TDRR 33431	CHG. NO. 68	JUN 1968 R/W
BL		REVISED PER TDRR 33432	CHG. NO. 68	JUN 1968 R/W
BM		REVISION STATUS CHANGED	CHG. NO. 68	JUN 1968 R/W
BU		REVISION STATUS CHANGED	CHG. NO. 68	JUN 1968 R/W
BP		REVISION STATUS CHANGED	CHG. NO. 68	JUN 1968 R/W
BR		REVISED PER TDRR 33985	CHG. NO. 68	JUN 1968 R/W
BS		REVISED PER TDRR 33987	CHG. NO. 68	JUN 1968 R/W
BT		REVISION STATUS CHANGED	CHG. NO. 68	JUN 1968 R/W
BU		REVISION STATUS CHANGED	CHG. NO. 68	JUN 1968 R/W
BV		REVISION STATUS CHANGED	CHG. NO. 68	JUN 1968 R/W
BW		REVISION STATUS CHANGED	CHG. NO. 68	JUN 1968 R/W
BY		REVISION STATUS CHANGED	CHG. NO. 68	JUN 1968 R/W
BZ		REVISION STATUS CHANGED	CHG. NO. 68	JUN 1968 R/W

UNLESS OTHERWISE SPECIFIED	AC ELECTRONICS DIVISION	MANNED SPACECRAFT CENTER HOUSTON, TEXAS
DIMENSIONS IN INCHES	GENERAL MOTORS CORP MILWAUKEE WIS	
2 PLACE 3 PLACE DECIMALS DECIMALS ANGLES	DRAWN BY C. WILSON	DATE 26 SEP 68
+ - + - + - - -	CHECKED S. AUSTIN	
	APPROVAL N. AUSTIN	
	CONTRACT NO. 59-9-497	
DO NOT SCALE THIS DRAWING		
MATERIAL NASA APPROVAL AC METZGER		
APPROVAL N. KUPFER		
SIZE CODE IDENT NO. D 99974	1021200	SCALE
SHEET 6 OF 6		

ITEM NO.	DESCRIPTION	END ITEM	RIB. NO. (REF)	AUTHORIZATION ECP NO. OR S.O.W.	P/N MOD. (REF)	RFK NO.	NEW P/N (REF)	S/N
54.1	CONFORMAL COAT WIRE TERMINALS AND REPLACE PIP PREAMP	IMU AND PEA	ECP 500	2007203-041	—	2007203-061	203	204 AND 205
54.3	REPLACE PIP PREAMP	IMU AND PTA	ECP 500	6007001-051	—	6007001-071	603,605, AND 606	
54.4	CONFORMAL COAT WIRE TERMINALS AND REPLACE PIP PREAMP	IMU	0102680	2018601-061	B102713	2018601-081	205, BLOCK II SPARE 2	
54.5	REPLACE PIP PREAMP	IMU	ECP 500	2018601-021	B102716	2018601-091	203	
54.6	REPLACE PIP PREAMP	IMU	ECP 500	2018601-061	B102716	2018601-081	204, BLOCK II SPARE 1	
54.7	REPLACE PIP PREAMP	PIP PREAMP	ECP 500	2007300-051	B102715	2018601-071	603,605, LEM SPARE 1	
54.8	REPLACE CAPACITOR	PIP PREAMP	ECP 500	2007300-011	B102714	2012169-011	ALL MODULES S/N'S LOWER THAN 3/24/07 HNUKA3	
54.9	CHANGE IMU NAMEPLATE	IMU	0102681	ECP 500	2018601-051	B102717	2018601-071	606, LEM SPARE 2
54.10	CONFORMAL COAT WIRE TERMINALS AND REPLACE PIP PREAMP	IMU & PTA	ECP 500	6007001-051	—	6007001-071	604	
54.11	REPLACE PIP PREAMP	IMU	ECP 500	2018601-051	B102716	2018601-071	604	
54.12	CONFORMAL COAT WIRE TERMINALS	IMU	ECP 500	2018601-071	B102713	2018601-071	603,605,606,2 SPARES ACC NO 121	
55.0	REPLACE UNRELIABLE CAPACITOR	IMU	0102678	ECP 500	1001500-091	B102709	1001500-111	G & N 123 AND SPARE S/N 7,9
	REPLACE UNRELIABLE CAPACITOR	PIP PREAMP	ECP 500	—	1008285-011	B102711	1008285-021	
56.0	ADDITION OF SEALANT TO CONNECTOR PLATES AND SHORTENING OF HARNESS MOUNTING SCREWS		ECP 529					
56.1	POWER AND SERVO ASSEMBLY C/M	0102683	ECP 529	2007200-081	B102725	2007200-111	203 THRU 206 AND 2 SPARES	
56.2	G & N INTERCONNECT HARNESS GROUP (C/M BLK II)	0102682	ECP 529	2014567-031	B102724	2014567-041	202 THRU 206 AND 2 SPARES	
57.0	REROUTE UPLINK SIGNALS	G & N INTERCONNECT HARNESS GROUP (LEM)	ECP 533	6014515-021	8102726	6014515-031	LEM 607,	
		G & N I/C HARNESS "A"		6010659		6010670	2 SPARES S/N 10,12	
58.0	REPLACEMENT OF COOLANT HOSE WITH SHORTER HOSE ASS'Y		0102685	ECP 561				
		NAV. BASE AND DUA ASS'Y			1899950-321	1899950-331	G & N 122	
		NAV. BASE AND DUA ASS'Y			1899950-311	1899950-341	G & N 123	
		COOLANT HOSE BYPASS ASSY			1021407	1021407-011	SPARE	
59.0	PROVIDE A RETICLE BRIGHTNESS POT WITH STRONGER SHAFT	G & N INDICATOR CONTROL PANEL ASSY COMPUTER CONTROL & RETICLE DIMMER ASS'Y		2014578-021 6014512-011	SEE ITEM 60 B102729	204 THRU 208 AND 1 SPARE 6014512-031	603 AND 605	
		COMPUTER CONTROL & RETICLE DIMMER ASS'Y		6014512-021	6014512-041	606 AND 607		
60.0	HUMAN FACTORS AND FUNCTIONAL SWITCH CHANGES	G AND N INDICATOR CONTROL PANEL ASSY	ECP 569	2014578-011 2014578-021 2014578-031	B102730	2021290-011 2021290-011 2021290-011	202 203 204 THRU 214 AND 2 SPARES	
61.0	INSTALL THERMAL SENSORS IN DUA	OPTICAL UNIT AND BELLows ASSY	N/A	ECP 501 AND 519	2010790-111	B102739	2010790-121	G & N 202
62.0	CUT PINS NO. 1 AND NO.9	2 SPEED SWITCH ASS'Y TRAY 8	0102684	ECP 555	1007522-021	B102727	1007522-031	G & N 122 & 123, S/n 502, 503
62.1	REPLACE 2 SPEED ASSEMBLY WITH MODIFIED 2 SPEED SWITCH ASSEMBLY	OPTICAL ELECTRONICS ASS'Y TRAY 8	0102684	ECP 555	1007578-021		1007578-031	G & N 122 & 123
62.2	REPLACE 2 SPEED SWITCH ASS'Y WITH MODIFICATION	OPTICAL ELECTRONICS ASS'Y TRAY 8	0102684	ECP 555	1007578-021		1007578-031	502 AND 503(SPARE TRAYS)
62.3	REPLACE WITH MODIFIED TRAY 8 ASS'FMBLY	PSA	0102684	ECP 555	1007570-021		1007570-041	501, G & N 123, 502, G & N 122

REVISIONS								
ZONE	LTR	DESCRIPTION	DATE	APPD	CHG NO.	AN	SWA	EW
BM	THIS SHT ADDED PER TD RR 33655	2 AUG 07	2 AUG 07					
BU	REVISED PER TORR 33725	7 AUG 07	7 AUG 07					
BP	REVISED PER TD RR 33861	9 AUG 07	9 AUG 07					
BR	REVISED PER TD RR 33985	21 AUG 07	7 SEP 07					
BS	REVISION STATUS CHANGED	23 AUG 07	7 SEP 07					
BT	REVISED PER TD RR 34100	1 SEP 07	1 SEP 07					
BU	REVISED PER TD RR 34101	23 AUG 07	1 SEP 07					
BV	REVISED PER TD RR 3437A	24 AUG 07	1 SEP 07					
BW	REVISED PER TD RR 34419	24 AUG 07	1 SEP 07					
BY	REVISION STATUS CHANGED	1 SEP 07	1 SEP 07					
BZ	REVISION STATUS CHANGED	26 SEP 07	1 OCT 07					

THIS SHEET ADDED

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOE TOLERANCE IS .005	AC ELECTRONICS DIVISION GENERAL MOTORS CORP. MILWAUKEE WI	MANNED SPACECRAFT CENTER HOUSTON, TEXAS
2 PLACE + 3 PLACE DECIMALS DECIMALS ANGLES + - - - -	DRAWN: MIKURS 2 AUG 07 CHECKED: <i>[Signature]</i> APPROVAL: <i>[Signature]</i> CONTRACT: <i>[Signature]</i>	MASTER RETROFIT KIT LIST APOLLO G & N (ACELECTRONICS)
DO NOT SCALE THIS DRAWING	MADE BY: <i>[Signature]</i>	CODE IDENT NO: <i>99974</i>
MATERIAL: <i>[Signature]</i>	NASA APPROVAL: <i>[Signature]</i>	SCALE: <i>[Signature]</i>
APPROVAL: <i>[Signature]</i>	NET APPROVAL: <i>[Signature]</i>	NET SHEET 7 OF 8

1021200

REVISIONS

ZONE	ltr	DESCRIPTION	DATE
BY	THIS SHT ADDED PER TORR 34558	CHG NO	APPD
BZ	REVISED PER TORR 34558	2021200	10/21/200

ITEM NO.	DESCRIPTION	END ITEM	R.I.B NO. (REF)	AUTHORIZATION ECP NO. OR S.O.W.	P/N MOD (REF)	RFK NO	NEW P/N (REF)	S/N
63.0	MSA & Q.R. MODULE ERROR AMP; CHANGE CAPACITOR, C21 FROM 1010317-4 TO 1008900-24	COUPLING DATA UNIT ASSY LEM	N/A	ECP 603				
63.1	MSA & Q.R. MODULE				2007238-011	8102741	2007238-031	
63.2					2007238-021		2007238-041	
64.0	MSA & Q.R. MODULE, ERROR AMP, CHANGE CAPACITOR C21 FROM 1010317-4 TO 1008900-24 AND TO MODIFY TRANSIENT RESPONSE TO REMOVE EFFECT ON CA MODE (DAC SATURATION)	COUPLING DATA UNIT ASSY C/M & LEM	N/A	ECP 603 & 609	2007222-131	8102741	2007222-171	G&N 603
64.1	MSA & Q.R. MODULE				2007238-011	8102741	2007238-051	SPARES & G&N MODULES
64.2					2007238-021	8102748	2007238-061	
64.3					2007222-131	8102744	2007222-221	605,606,607,608,609 & 3 SPARES
64.4					2007222-161	8102743	2007222-181	205,206,207,208,209 & 3 SPARES
64.5					2007222-101	8102743	2007222-191	203,204
64.6					2010744-051	8102745	2010744-071	202
64.7					2010744-041	8102746	2010744-061	602
65.0	REPLACE LACING TAPE, ADD ALUM.FOIL TAPE	SIG.COND.ASS'Y C/M OPERATIONAL	N/A	ECP 623	2007234-011	8102731	2007234-021	G&N 205,206,207,208,209,
65.1		HEADER ASS'Y SIG.COND. C/M OPERATIONAL	N/A		2007270-011		2007270-021	210 & 210S
65.2		WIRING HARNESS "A"			2014803		2021291	
65.3		SIG.COND.ASS'Y C/M FLIGHT QUAL.	N/A		2007235-011		2007235-021	G&N 202 & 204
65.4		HEADER ASS'Y SIG.COND.FLIGHT QUAL.	N/A		2007271-011		2007271-021	
65.5		WIRING HARNESS "A"	N/A	ECP 623	2014802	8102731	2021289	
66.0	ADD ALUM, FOIL TAPE	SIG.COND.ASS'Y LEM FLIGHT QUAL.	N/A	ECP 624	6007010-011	8102749	6007010-021	G&N 602,603,605 & 606
66.1		HEADER ASS'Y SIG.COND. LEM FLIGHT QUAL.	N/A		6007016-011		6007016-021	
66.2		SIG.COND.ASS'Y LEM OPERATIONAL	N/A		6007013-011		6007013-021	G&N 607,608,609,610 & 608S
66.3		HEADER ASS'Y SIG.COND. OPERATIONAL	N/A	ECP 624	6007014-011	8102749	6007014-021	

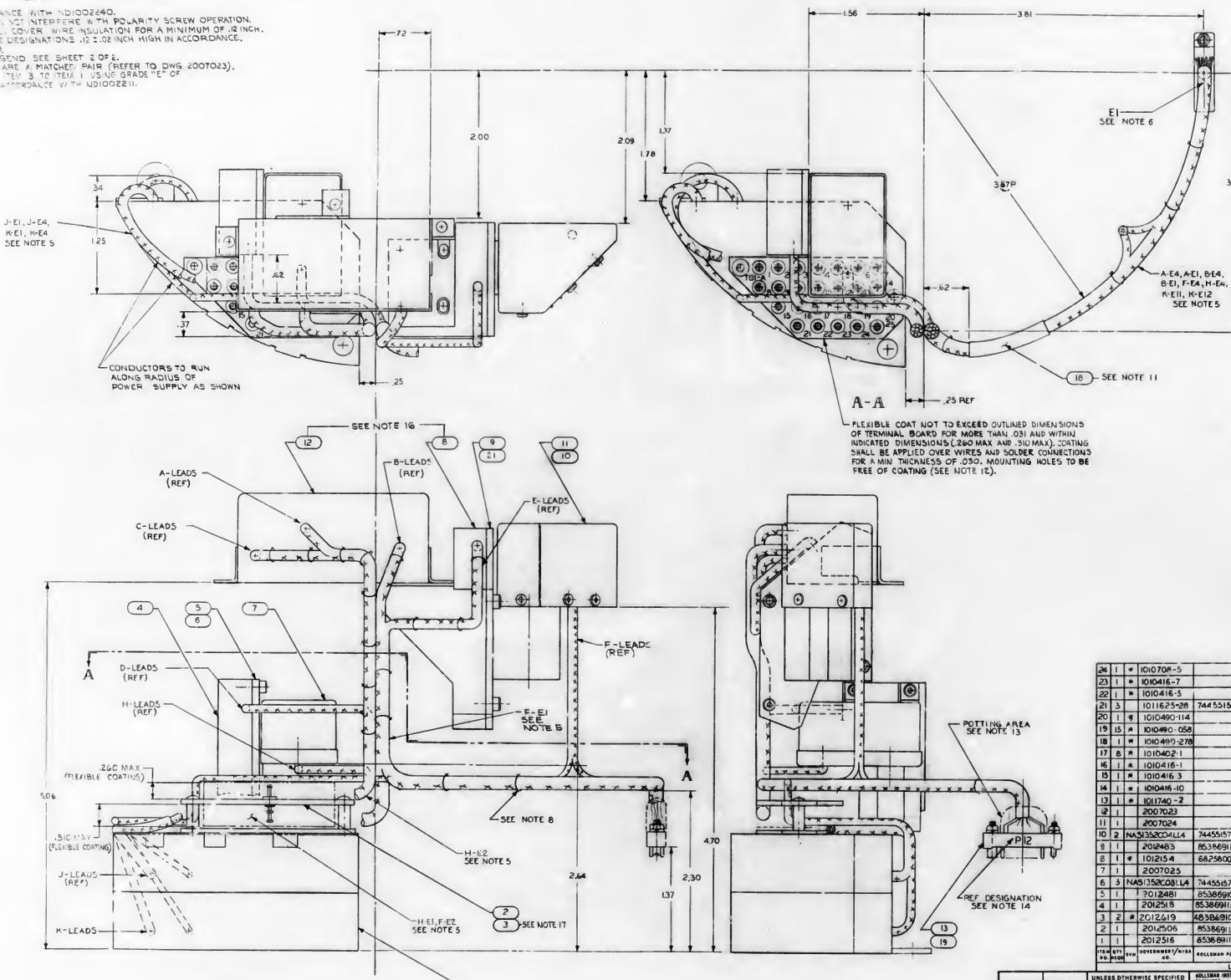
UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
2 PLACE 3 PLACE
DECIMALS DECIMALS ANGLES
+ - + - + -
CIRCLED CROSSED APPROVED
DO NOT SCALE THIS DRAWING CONTRACT
MATERIAL AC ELECTRONICS DIVISION
NASA APPROVAL AC METZGER
CCB M&S APPROVAL E.AUSTIN
APPROVAL

GENERAL MOTORS CORP. MILWAUKEE WIS.
15 SEPT 67
15 SEPT 67
APPROVED
CONTRACT
SIZE CODE IDENT NO
D 99974 1021200
SCALE

MANNED
SPACECRAFT CENTER
HOUSTON TEXAS
MASTER RETROFIT KIT LIST
APOLLO G & N
(ACELECTRONICS)
CODE IDENT NO
D 99974 1021200
SCALE

NOTES:

1. INTERFERED DRAWING IN ACCORDANCE WITH MIL-D-7027.
2. NOT TO WIRING SCHEMATIC, DATA DRAWING NO. 2012391.
3. TWIST CORDS ARE IN ACCORDANCE WITH ND02032.
4. TIE (1) AT (19) TO LEADS.
5. TERMINATE SHIELDED WIRES, USING ITEM (17), IN ACCORDANCE WITH ND1002071.
6. E1 PRINT TO BE A SPLICE, USING ITEM (18), IN ACCORDANCE WITH ND100232
7. APPROXIMATE LENGTH OF LEAD IS 1.5 INCHES OR HANDBESS.
8. 7-LEAF SPLICERS, IN ACCORDANCE WITH ND1002071.
9. LAGE CONDUCTORS, IN ACCORDANCE WITH ND100203.
10. PERFORM CONTINUITY CHECK.
11. PLACE ITEM (18) OVER CONTACTS AND LEADS AND SHRINK.
12. SUR NK ITEM (18) AND IDENTIFY ASSEMBLY USING NASA DWG NO. REVISION LETTER AND MANUFACTURE SYMBOL IN ACCORDANCE WITH ND100219.
13. USE ITEM (19) WITH TYPE II (FLEXIBLE).
14. CUT (20).
15. POTTING CHAMBER INTERFERES WITH POLARITY SCREW OPERATION.
16. POTTING CHAMBER COVERS WIRE INSULATION FOR A MINIMUM OF .12 INCH.
17. MARK REFERENCE DESIGNATIONS 1/2 .12 INCH HIGH IN ACCORDANCE, WITH ND100244.
18. FTR. WIRE LEGEND SEE SHEET 2 OF 2.
19. TIE (18) IS A MATCHED PAIR (REFER TO DWG 2007023).
20. E1 FOOT "E1" IS TO ITEM 1 USING GRADE "E" OF MIL-D-22472, IN ACCORDANCE WITH ND100211.



* PURCHASE ITEM - SEE SPECIFICATION
CONTROL DWS BEFORE ORDERING

	UNLESS OTHERWISE SPECIFIED	HOLLOWELL INSTRUMENT CORPORATION		MANNED SPACECRAFT CENTER
DIMENSIONS IN INCHES		P.O. BOX 8560		HOUSTON, TEXAS
TOP: 12		TELEGRAM NO. 80385601070		TITLE
DO NOT SCALE THIS DRAWING				HEAD ELECTRONICS, HARNESS ASSY OF
MATERIAL				
2011701 2011000		NASA APPROVAL		CODE ITEM NO. 1012 E NASA NUMBER 2012509
NEXT ASSY USED ON		MIT APPROVAL		SCALE 2/1 WEIGHT ACTUAL SHEET 1 OF 2
APPLICATION				
3		2		1

NOTES:
SEE SHEET 1 OF 2.

REVISIONS		
SYM	ITEM	DESCRIPTION
A	REVISED FEB 1970	100-1000
B	REVISED FEB 1970	100-1000
C	REVISED FEB 1970	100-1000

WIRING LEGEND							
MODULE	ITEM NO.	COND. NO.	COLOR	FROM	INTERIM PT.	TO	SEE NOTE
TUNING FORK ASSY (TRACKER) 2007022	E5	RED	A-E5		TBI-B7		8
	E5	RED	A-E5		TBI-B6		
	E7	RED	A-E7		TBI-B5		8
	E2	BLACK	A-E2		TBI-B6		
REF. DESIG. - A	E6	RED	A-E6		TBI-A13		
	E4	WHITE	A-E4		P12-K		
	I4	WHITE	A-E4 SHIELD		K-E4 SHIELD		
	E1	WHITE	J-E1		P12-H		
	I4	WHITE	A-E4 SHIELD		A-E4 SHIELD		
	E5	RED	B-E5		TBI-B23		8
	E3	RED	B-E3		TBI-B24		
TUNING FORK ASSY (TRACKER) 2007022	E7	RED	B-E7		TBI-B25		8
	E2	BLACK	B-E2		TBI-B22		
REF. DESIG. - B	E6	RED	B-E6		TBI-A13		
	E4	WHITE	B-E4		P12-C		
	I4	WHITE	B-E4 SHIELD		F-E4 SHIELD		
	E1	WHITE	B-E1		P12-A		
	I4	WHITE	B-E1 SHIELD		B-E1 SHIELD		
	E2	RED	C-E2		TBI-B4		8
	E4	RED	C-E4		TBI-B41		
TUNING FORK ASSY (PHOTOMETER) 2007021	E5	RED	C-E5		TBI-B16		
REF. DESIG. - C	E3	BLACK	C-E3		TBI-B17		8
	E1	RED	C-E1		TBI-B15		
	WHITE	WHITE			TBI-A23		
	BLACK	WHITE			TBI-A24		
	ORANGE	WHITE			TBI-A25		
	VIOLET	WHITE			TBI-A12		8
	YELLOW	WHITE			TBI-A7		
	GREEN	WHITE			TBI-A8		
	RED	WHITE			TBI-A5		
	BLUE	WHITE			TBI-A9		
	YELLOW	WHITE			TBI-A4		
	GREEN	WHITE			TBI-A11		
RESONATOR, TUNING FORKS ASSY (OF TRACKER) 1012154	RED	WHITE			TBI-A16		
REF. DESIG. - E	BLUE	WHITE			TBI-A17		8
RESONATOR TUNING FORKS ASSY (OF PHOTOMETER) 1012155	BLUE	WHITE					
REF. DESIG. - D	BLUE	WHITE					

MODULE	ITEM NO.	COND. NO.	COLOR	FROM	INTERIM PT.	TO	SEE NOTE
HEAD ELECTRONICS ASSY (TRACKER) 2007024	E1	WHITE	I-E1			TBI-A2	
	I4	WHITE	F-E1 SHIELD			F-E2 SHIELD	
	E2	WHITE	F-E2			TBI-A1	
	I4	WHITE	F-E2 SHIELD			H-E1 SHIELD	
	E3	RED	I-E3			TBI-A2	
	E5	BLACK	F-E5			P12-D	
	E4	WHITE	F-E4			P12-F	
REF. DESIG. - F	I4	WHITE	F-E4 SHIELD			A-E1 SHIELD	
	E1	WHITE	H-E1			TBI-A9	
	I4	WHITE	H-E1 SHIELD			H-E2 SHIELD	
	E2	WHITE	H-E2			TBI-A8	
	I4	WHITE	H-E2 SHIELD			TBI-A21	
	E3	RED	H-E3			TBI-A14	
	E5	BLACK	H-E5			P12-T	
	E4	WHITE	H-E4			P12-V	
HEAD ELECTRONICS ASSY (PHOTOMETER) 2007025	I4	WHITE	H-E4 SHIELD			E1	
REF. DESIG. - H	E1	WHITE	K-E1			TBI-B2	
	I4	WHITE	K-E1 SHIELD			K-E4 SHIELD	
	E4	WHITE	K-E4			TBI-B1	
	I4	WHITE	K-E4 SHIELD			J-E1 SHIELD	
	E13	RED	K-E13			TBI-B12	8
	E5	BLACK	K-E5			TBI-B16	
	E11	WHITE	K-E11			P12-N	
	I4	WHITE	K-E11 SHIELD			K-E12 SHIELD	
	E12	WHITE	K-E12			H-E4 SHIELD	
	I4	WHITE	K-E12 SHIELD			P12-P	
REF. DESIG. - K	E1	WHITE	J-E1			TBI-B9	
	I4	WHITE	J-E1 SHIELD			J-E4 SHIELD	
	E4	WHITE	J-E4			TBI-B6	
	I4	WHITE	J-E4 SHIELD			TBI-B21	
	E5	BLACK	J-E5			TBI-B17	8
REF. DESIG. - J	E6	RED	J-E6			TBI-B12	
	I4	WHITE	TBI-A21	E1		P12-U	
	15	RED	TBI-A14			P12-W	
	16	BLACK	TBI-A20			P12-X	
	22	YELLOW	TBI-A18			P12-S	
	23	BLUE	TBI-A19			P12-L	
	24	**	BLUE			TBI-B12	
	24	**	BLUE			TBI-B13	
	24	**	BLUE			TBI-B14	
	24	**	BLUE			TBI-B17	
	24	**	BLUE			TBI-B18	
	24	**	BLUE			TBI-B19	
	24	**	BLUE			TBI-B20	
	24	**	BLUE			TBI-B21	
	24	**	BLUE			TBI-B22	
H V POWER SUPPLY ASSY (TRACKER) 2007030							
H V POWER SUPPLY ASSY (PHOTOMETER) 2007031							
REF. DESIG. - J							

* * - TO FACILITATE ASSEMBLY
INSULATION MAY BE STRIPPED FROM WIRE.

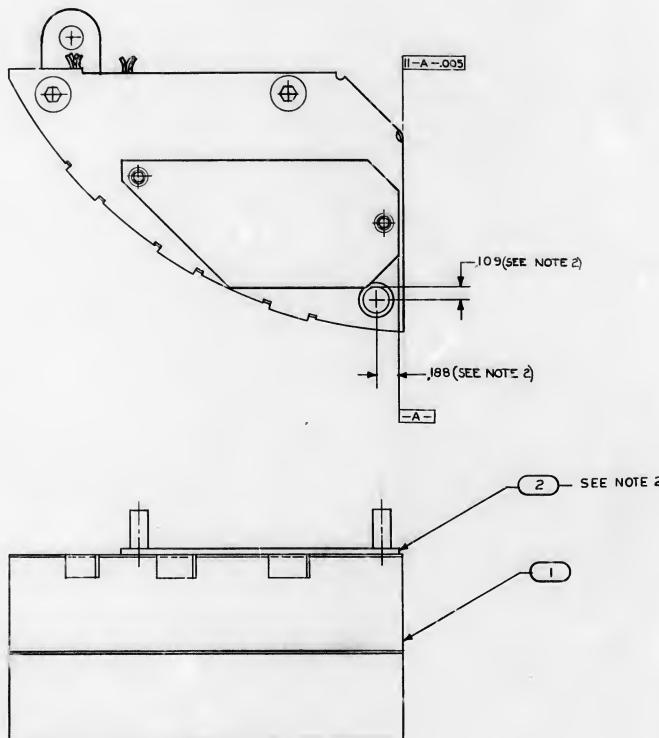
ITEM QTY	NO. ITEM	DESCRIPTION	MATERIAL	SPECIFICATION
PARTS AND MATERIALS				
UNLESS OTHERWISE SPECIFIED				
DIMENSIONS IN INCHES				
RUMBLE INSTRUMENT COMPANY NEW YORK P.O. BOX 80386910070				
DO NOT SCALE THIS DRAWING				
TECHNICAL DRAWING NO. 2011000				
APPROVAL SIGNATURE				
DATE 2/1/70				
MATERIAL APPROVAL SIGNATURE				
DATE 2/1/70				
APPLICATION				
2011000 2011000				
REVISIONS				
1. MANNED SPACERCRAFT CENTER HOUSTON, TEXAS				
HEAD ELECTRONICS, HARNESS ASSY OF				
CODE IDENT. NO. S/N 320 E 2012509				
SIZE 2 1/2 INCHES				
DATE 2/1/70				
2. HEAD ELECTRONICS, HARNESS ASSY OF				
CODE IDENT. NO. S/N 320 E 2012509				
SIZE 2 1/2 INCHES				
DATE 2/1/70				

NOTES:
 1. INTERPRET DRAWING IN ACCORDANCE WITH MIL-D-70327.
 2. MATE ITEM ② FROM & OF STUD IN ITEM ① AND BOND ITEM ③.
 3. ITEM ① AS SHOWN IN ACCORDANCE WITH ND 1002004, TYPE II.
 3. IDENTIFY USING NASA DRAWING NO., REVISION LETTER
 AND MANUFACTURER'S SYMBOL PER ND1002019(TAGGING)

2012516 A

REVISIONS TDRC 1458

SYM	ZONE	DESCRIPTION	DATE APPROVAL
A		REVISED PER TDRC 21304	11/16/02



2	1	2012505	85386911250	PLATE, STAND-OFF ASSEMBLY OF																																																																																																																																																	
1	1	2007030		HV POWER SUPPLY PHOTOMETER -TRACKER ASSY																																																																																																																																																	
ITEM QTY	NO. REQ'D	ITEM QTY	GOVERNMENT/NASA NO.	KOLLMAN PART NO.	CODE IDENT	NONCULATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT																																																																																																																																												
LIST OF PARTS AND MATERIALS																																																																																																																																																					
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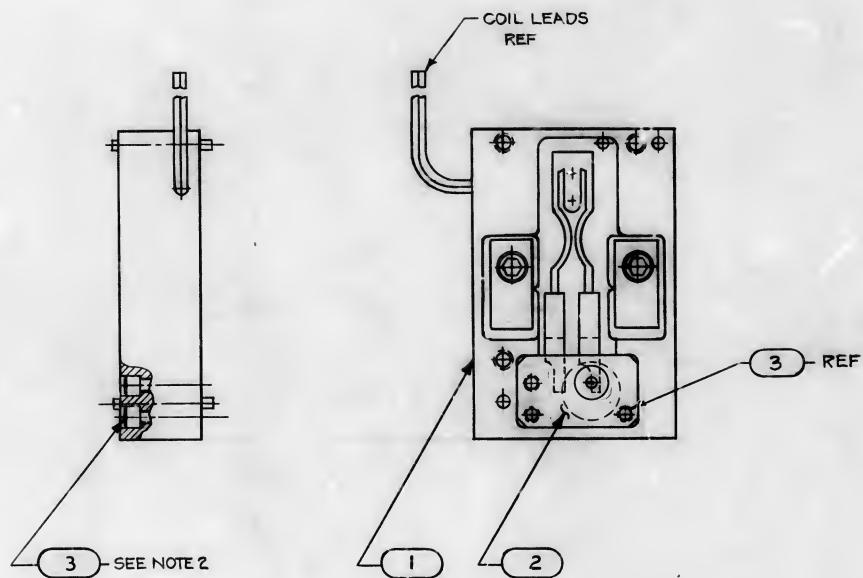
NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH MIL-D-70327.
2. VIBRATION PROOF ITEM 3 TO ITEM 2 USING GRADE "HY" OF MIL-S-22473 IN ACCORDANCE WITH ND1002211.
3. IDENTIFY USING NASA DWG. NO., REVISION LETTER AND MANUFACTURER'S SYMBOL PER ND1002019(BAGGING).

2012518 A

REVISIONS 16877

SYM	ZONE	DESCRIPTION	DATE	APPROVAL
A		REVISED PER TDRR 19847	1/16/84	W/K



*PURCHASE ITEM - SEE SPECIFICATION
CONTROL DWG BEFORE ORDERING

3	3	*	2012532	48386910160	SCREW, CAP, SOC.HD., SELF LOCKING
2	1		2012195	85386911220	FIELD STOP, ASSEMBLY
1	1	*	1012155	68258001001	RESONATOR, TUNING FORK, ASSY OF (PHOTOMETER)
ITEM NO.	QTY	SYN	GOVERNMENT/NASA NO.	KOLLMAN PART NO.	NOMENCLATURE OR DESCRIPTION MATERIAL SPECIFICATION UNIT WT

LIST OF PARTS AND MATERIALS

UNLESS OTHERWISE SPECIFIED			KOLLMAN INSTRUMENT CORPORATION ELMHURST NEW YORK KIC PN 85386911300		MANNED SPACECRAFT CENTER HOUSTON, TEXAS						
DIMENSIONS ARE IN INCHES											
FRACTIONS DECIMALS ANGLES											
TOL. + -	-	+ -	+ -								
DO NOT SCALE THIS DRAWING											
MATERIAL											
DRAWN FOR APALA DATE 2-10-65											
CHECKED J. SULLIVAN 2-17-65											
APPROVAL G. Hansen 2-17-65											
APPROVAL E. Thomas 2-25-65											
2012509	2011000		2-15-65	CODE IDENT NO.	SIZE	NASA NUMBER					
NEXT ASSY	USED ON	CONTRACT	NASA APPROVAL W. J. Klein	80230	C	2012518					
APPLICATION			MIT APPROVAL W. J. Klein 2-15-65	SCALE 2/1	WEIGHT	CALC ACTUAL					
					SHEET 1 OF 1						

NOTES

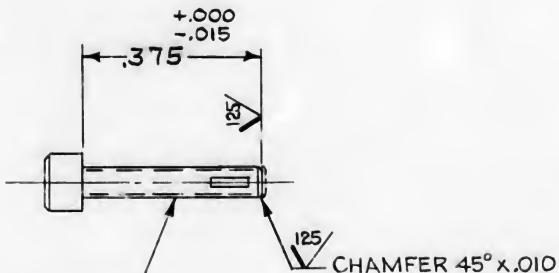
- 1) INTERPRET DRAWING IN ACCORDANCE WITH MIL-D-70327.
- 2) GENERAL MACHINING STANDARDS IN ACCORDANCE WITH ND1002078.
- 3) REMOVE BURRS IN ACCORDANCE WITH ND1002019.
- 4) IDENTIFY USING NASA DWG. NO., REVISION LETTER & MANUFACTURER'S SYMBOL PER ND1002019 (BAGGING).

2012532

REVISIONS

16877

SYM	DESCRIPTION	DATE	APPROVAL



NO. 1-64 UNC-3ATHD
REF

ITEM NO.	QTY REQ'D	SYM	GOVERNMENT/NASA NO.	KOLLMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION
LIST OF PARTS AND MATERIALS								
		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES			KOLLMAN INSTRUMENT CORPORATION ELMHURST NEW YORK KIC PN 48386910160 DRAWN A.C.WILLIAMS DATE 2-12-65 CHECKED J.SULLIVAN 2-12-65 APPROVAL G.Lambert 2-13-65 APPROVAL E.Thorup 2-25-65			
TOL ON	FRACTIONS	DECIMALS	ANGLES	TITLE				
+ -	-	.005	+ 1°	SCREW, CAP, SOCKET HEAD SELF LOCKING				
		DO NOT SCALE THIS DRAWING			APPROVAL G.Lambert 2-13-65 APPROVAL E.Thorup 2-25-65 NASA APPROVAL W.J. Ashe MIT APPROVAL W.Kayser 26 Feb 65			
		MATERIAL NAS1352COILL6 74455157004 REF. CORROSION RESISTANT STEEL						
2012518	2011000	CONTRACT			CODE IDENT NO.	SIZE	NASA NUMBER	
NEXT ASSY	USED ON				B	2012532		
APPLICATION					SCALE 4/1	WEIGHT	CALC ACTUAL	SHEET 1 OF 1

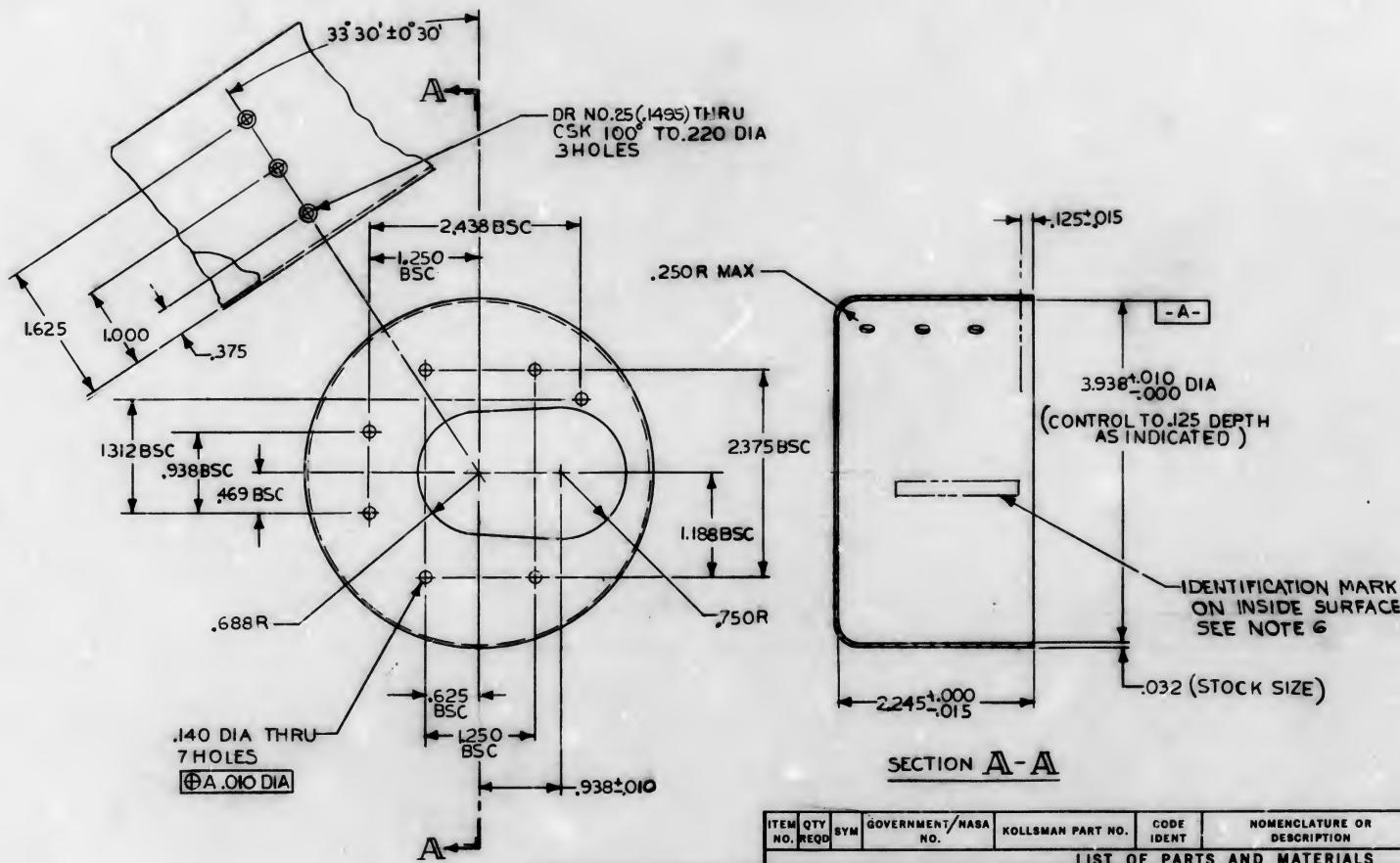
ACTUAL SIZE

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH MIL-D-70327.
 2. GENERAL MACHINING STANDARDS IN ACCORDANCE WITH ND1002078.
 3. UNLESS OTHERWISE SPECIFIED:
63 ✓ FINISH ALL OVER
 4. REMOVE BURRS IN ACCORDANCE WITH ND1002079.
 5. ANODIZE (SULFURIC) INSIDE SURFACES ONLY (HOLES OPTIONAL)
PER MIL-A-8625 TYPE II DYED BLACK (KPS-1005A.150TYPE II CLASS 3)
 6. IDENTIFY USING NASA DWG NO., REVISION LETTER & MANUFACTURER'S
SYMBOL PER ND1002019.

A 2012545

REVISIONS TD 18584				
SYM	ZONE	DESCRIPTION	DATE	APPROVAL
A		REVISED PER TDRR 23070	10/16/65	W/H

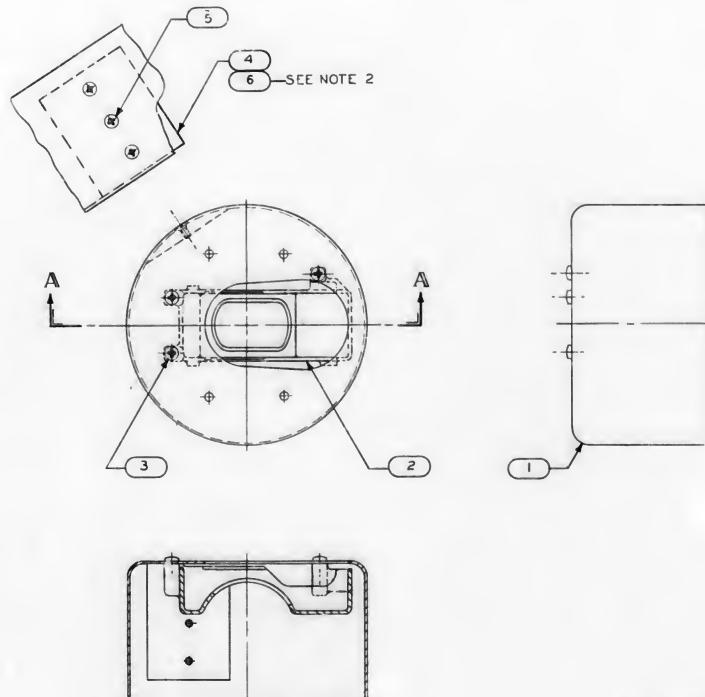


ITEM NO.	QTY	SYN	GOVERNMENT/NASA NO.	KOLLMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT
LIST OF PARTS AND MATERIALS									
UNLESS OTHERWISE SPECIFIED				KOLLMAN INSTRUMENT CORPORATION ELMHURST NEW YORK		MANNED SPACECRAFT CENTER HOUSTON, TEXAS			
DIMENSIONS ARE IN INCHES				KIC PN 50386910130					
TOL ON	FRACTIONS	DECIMALS	ANGLES	DRAWN 4-27-64 DATE 3-1-68					
DO NOT SCALE THIS DRAWING				CHECKED T. SULLIVAN 4-27-65					
MATERIAL ALUMINUM ALLOY FED SPEC QQ-A-250/8				APPROVED J. B. HARRIS 3/26/65					
TEMPER O				APPROVAL E. H. HARRIS 3/26/65					
2012547	2011000	CONTRACT		NASA APPROVAL W. J. R. HARRIS		CODE IDENT NO.	SIZE	NASA NUMBER	
NEXT ASSY	USED ON			MIT APPROVAL W. J. R. HARRIS		80230	C	2012545	
APPLICATION				SCALE 1/1	WEIGHT	CALC ACTUAL	SHEET 1 OF 1		
4	3			2	1		X		

NOTES:
 1. INTERPRET DWG IN ACCORDANCE WITH MIL-D-70327.
 2. CEMENT ITEM 4 TO ITEM 1 USING ADHESIVE (ITEM 6) PER ND1002219.
 3. IDENTIFY USING NASA DWG NO., REVISION LETTER AND MANUFACTURERS SYMBOL PER ND1002019 (TAGGING).

2012547

REVISIONS			
SYM	ZONE	DESCRIPTION	DATE APPROVA
			15-84



* PURCHASE ITEM - SEE SPECIFICATION
CONTROL DWG BEFORE ORDERING

SECTION A-A

6	AR *	1011541	74471435001	ADHESIVE, EPOXY
5	3	NAS1189C04P4L	74455155008	SCREW, SELF LOCKING 100° FLAT HEAD
4	1	2012137	57386911230	COUNTER WEIGHT
3	3	NAS1190C04P4L	—	SCREW, SELF-LK PAN HEAD FULLTHD 150° F.
2	1	2012508	5238691060	BAFFLE, DOVE PRISM, SCT
1	1	2012545	50386910130	COVER, TELESCOPE HEAD

ITEM QTY NO. REQ'D	SYN	GOVERNMENT/NASA NO.	KOLLMAN PART NO.	COOK IDENT	HOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNI WT
LIST OF PARTS AND MATERIALS								

UNLESS OTHERWISE SPECIFIED	ROLLSMAN INSTRUMENT CORPORATION ELKHORN	MANNED SPACECRAFT CENTER HOUSTON, TEXAS
TOL ON * * * * *	PR 85386911330	TITLE

DO NOT SCALE THIS DRAWING	DRAWN E.OMAPALA DATE 3-3-68	COVER AND BAFFLE, ASSY OF (SCT)
MATERIAL	CHECKED J. SULLIVAN 3-25-68	APPROVED E. M. 3-27-68

CONTRACT	NASA APPROVAL 4-2-68	COLD IDENT NO. SIZE NASA NUMBER
	W. J. G.	80230 D 2012547

MIT APPROVAL	W. J. G.	SCALE 1 / 1 WEIGHT
		CALC ACTUAL SHEET 1 OF 1